

AN ANNOTATED BIBLIOGRAPHY

OF

MEDICAL MYCOLOGY

1948

The contracted titles used in this bibliography are based on the *World List of Scientific Periodicals*, with the following exceptions:

- B.A.* = *Biological Abstracts*
B.H. = *Bulletin of Hygiene*
R.A.M. = *Review of Applied Mycology*
T.D.B. = *Tropical Diseases Bulletin*
V.B. = *Veterinary Bulletin*.

1051. DRAKE (C. H.). **Arthur Trautwein Henrici (1889–1943).**—*Mycopathologia*, iv, 2, pp. 120–123, 1 pl., 1948.

This brief memoir of A. T. Henrici is followed by a list of 64 of his publications.

1052. NICKERSON (W. J.) Ed. **Biology of pathogenic fungi.**—xx+236 pp., 9 pl., 1 fig., 9 diags., 7 maps, Chronica Botanica Company, Waltham, Mass., U.S.A., 1947.

Comprised in this volume (No. VI of the *Annales cryptogamici et phytopathologici*) on medical fungi are a foreword by J. G. HOPKINS, Professor of Dermatology, Columbia University, a preface and introductory chapter (1) by W. J. NICKERSON, and the following contributions: (2), on the biology of the pathogenic *Torulopsoideae*, by J. LODDER and A. DE MINJER; (3) chromoblastomycosis and its etiologic fungi, by A. L. CARRIÓN and MARGARITA SILVA; (4) biology of *Pityrosporum ovale*, by RHODA W. BENHAM; (5) biology of *Coccidioides*, by C. W. EMMONS; (6) recent advances of the Italian school of mycopathology (1941–1945), by R. CIFERRI and P. REDAELLI; (7) the action of sulfonamides and antibiotic agents on the pathogenic fungi, by F. T. WOLF; (8) geographic distribution of systemic fungus diseases, by D. S. MARTIN; (9) nutrition and metabolism of pathogenic fungi, by W. J. NICKERSON and J. W. WILLIAMS; (10) metabolic products of pathogenic fungi, by W. J. NICKERSON; (11) the lipids of fungi with special reference to pathogenic fungi; and (12) respiration and fermentation of pathogenic fungi. Indices of authors, organisms, and subjects are appended.

1053. MACKENNA (R. M. B.) Ed. **Modern trends in dermatology.**—xiv+432 pp., 32 figs., London, Butterworth & Co. (Publishers) Ltd., 1948. 42s.

J. T. DUNCAN is responsible for chapter 10 (pp. 212–236) of this volume, dealing with mycology in relation to dermatology. Other chapters also contain references to the mycological aspects of the subject, e.g. 12 (pp. 253–274) concerned with occupational dermatoses, by L. SCHWARTZ; 13 (pp. 275–293) on dermatological problems in tropical and subtropical areas, by A. G. FER-GUSSON; and 16 (pp. 332–379), entitled 'Modern trends in therapy' and comprising sections (1) antibiotics in dermatology, by F. C. DELLER, (2) principles of treatment, by B. C. TATE; and (3) radiation therapy in skin diseases, by P. H. WHITAKER.

1054. DUNCAN (J. T.). **The epidemiology of fungus diseases.**—*Trans. roy. Soc. trop. Med. Hyg.*, xlii, 3, pp. 207–216, 1948.

An outline is given of the available information on the epidemiology of the dermatophytoses (*Microsporum* and *Trichophyton* spp.), tinea pedis (*T.* and *Epidermophyton* spp.), the systemic mycoses, coccidioidomycosis (*Coccidioides immitis*), sporotrichosis (*Sporotrichum schencki*), chromoblastomycosis (*Phialophora verrucosa*, *P. pedrosoi*, and *P. compacta*), North American blastomycosis (*Blastomyces dermatitidis*), South American blastomycosis (*Paracoccidioides brasiliensis*), histoplasmosis (*Histoplasma capsulatum*), torulosis (*Cryptococcus neoformans*), moniliasis (*Candida albicans* and *C. tropicalis*), actinomycosis (*Actinomyces israeli*, syn. *A. bovis*), and mycetoma.

In the author's opinion, a survey of the mycoses of the British colonies is long overdue, and the first step should be the provision of special training in medical mycology and mycological methods for local bacteriologists and pathologists.

1055. REISS (F.). **Medical mycology. A review of the literature from 1945 to 1948.**—*Dermatologica* (formerly *Derm. Z.*), xcvii, 1–3, pp. 134–158, 1948.

The author's commentary on the literature on medical mycology from 1945 to 1948 is divided into the following sections, each followed by a bibliography: physiology and immunity; general laboratory investigative methods; biological action of antibiotics produced by fungi; tinea capitis; dermatophytosis pedum; favus; otomycosis; moniliasis; histoplasmosis; coccidioidomycosis; actinomycosis; blastomycosis; sporotrichosis; cryptococcosis; and tropical and rare mycoses.

1056. GOHAR (N.). **Mycoses and practical mycology.**—xi+234 pp., 4 col. pl., 134 figs., London, Baillière, Tindall & Cox, 1948. 25s. net.

This handbook for students and practitioners, to which a foreword is contributed by Sir Philip Manson-Bahr, opens with a chapter (I) on mycology comprising the origin, definition, and structure of fungi, their sexuality and modes of reproduction, and general classification. The remaining 11 chapters deal with (II) the mycoses in general, (III) mycetoma, (IV) blastomycosis, (V) mycoses of the digestive tract, (VI) sporotrichosis and hemisporosis, (VII) bronchomycosis, oculomycosis, otomycosis, and genito-urinary mycosis, (VIII), (IX), and (X) epidermophytosis, (XI) pityriasis capitis, and (XII) fungicides, fungistatics, prescriptions, media, and poisonous fungi.

A few pathogenic species isolated in Egypt are recorded, together with some original clinical and therapeutic observations.

1057. DE MAGALHÃES (O.) & ALEIXO (H. B.). **Ensaios de micologia.** [Contributions to mycology.]—*Mem. Inst. Osw. Cruz*, xliv, 4, pp. 687–710, 1 col. pl., 31 figs., 1 map, 1946. [English summary.]

Clinical and mycological studies on the following fungi pathogenic to man or animals in the State of Minas Gerais, Brazil, are described: *Actinomyces bovis*, *A. brasiliensis*, *Proactinomyces asteroides* var. *decolor*, *Monosporium apiospermum* [*Allescheria boydii*], and *Rhinocladium beurmanni* [*Sporotrichum schencki*].

1058. AINSWORTH (G. C.). **Fungous diseases of animals in Britain.**—Reprinted from *Vet. Rec.*, lx, 2 pp., [1948].

Of the fungal diseases of animals known in Great Britain, only epizootic lymphangitis of horses, due to *Cryptococcus farciminosus*, has received legal recognition. Introduced shortly after the Boer War, this disease was promptly

eradicated. Aspergillosis (*Aspergillus fumigatus*) of poultry and other birds in captivity is widespread and regularly causes appreciable losses. Actinomycosis in cattle (*Actinomyces* sp.) and other animals is well known, but few modern records exist. Ringworm diseases are probably the commonest mycoses affecting the higher animals, but there is little attempt at control. Fowl favus [*Achorion gallinae*] has become less prevalent. In addition to salmon disease of freshwater fish caused by species of *Saprolegnia*, occasionally troublesome, there are a number of records of abnormalities in animals caused by, or associated with, fungi. A few cases of histoplasmosis in man due to *Histoplasma capsulatum* have been recorded in the past six years. In the United States, this disease is also found in dogs, and in one instance the dog had recently been imported from England.

Much uncertainty prevails as to the identity of the pathogens causing even the commoner mycoses of animals in Britain.

The paper concludes with notes on the application of the International Rules of Botanical Nomenclature to the identification of fungi causing animal mycoses.

1059. LITTMAN (M. L.). **Growth of pathogenic fungi on a new culture medium.**—*Amer. J. clin. Path.*, xviii, 5, pp. 409–420, 1 fig., 2 graphs, 1948.

In experiments at the Tulane University School of Medicine, New Orleans, Louisiana, oxgall streptomycin crystal violet agar [see entry 847] supported growth of 33 mostly pathogenic species of fungi from fragments of inocula, 3 to 5 mm. in diameter, at the same rate as Sabouraud's dextrose agar. Three times as many species and colonies were isolated from faeces, sputum, skin scrapings, and hair on the new medium as on Sabouraud's agar and four times as many dermatophytes. Twenty samples of faeces yielded 504 colonies of 13 different genera of fungi on the oxgall agar.

1060. DELAMATER (E. D.). **Technic and identification of fungi of medical interest.**—*Amer. J. clin. Path.*, xviii, 3, pp. 235–246, 3 figs., 1948.

The purpose of this report from the Mayo Clinic, Rochester, Minnesota, is to emphasize certain diagnostic features of the various mycoses, and to present in abbreviated pictorial form the most important points in the diagnosis of each. The aspects comprise collection of material, direct observations, cultural methods, and use of laboratory animals, and the fungi listed include the dermatophytes, *Candida albicans*, *Cryptococcus hominis* [*C. neoformans*], *Blastomyces dermatitidis*, *Coccidioides immitis*, *Histoplasma capsulatum*, *Sporotrichum schenckii*, *Aspergillus fumigatus*, *Hormodendrum* [*Phialophora*] *pedrosoi*, *Actinomyces bovis* [*A. israeli*], and *Nocardia asteroides*.

1061. LOPEZ (A. A.). **Report of one year's mycologic investigation.**—*Occup. Med.*, iv, 1, pp. 98–99, 1947.

Actinomyces bovis [*A. israeli*] was isolated from two, and *Candida albicans* from 11 out of 414 specimens of sputum (0.5 and 2.6 per cent., respectively), examined during one year at the Amador Guerrero Hospital, Colon, Panama Canal Zone. At the same time the following organisms were isolated from 25 cases of superficial infections: *Actinomyces israeli*, *Hormodendrum compactum* [*Phialophora compacta*], *Microsporum lanosum* [*M. canis*], and *Candida albicans*, one each (4 per cent.), *Trichophyton concentricum* two (8), and *M. canis* three (12).

1062. BAKER (R. D.). **Tissue changes in fungous disease.**—*Arch. Path.*, xlv, 5, pp. 459–466, 1947.

When the microscopic appearances of fungous diseases were tabulated with reference to the degree of suppuration, macrophages, giant cells, caseous

necrosis, and fibrosis, several of the deep infections, e.g., North and South American blastomycosis [*Blastomyces dermatitidis* and *Paracoccidioides brasiliensis*, respectively], coccidioidomycosis [*Coccidioides immitis*], and sporotrichosis [*Sporotrichum schencki*], were found to show all these tissue changes. Other types, represented by actinomycosis [*Actinomyces* spp.], nocardiosis [*Nocardia* spp.], maduromycosis [various fungi], and chromoblastomycosis [*Phialophora pedrosoi* and other fungi], generally show all the changes except caseous necrosis. Two deep mycoses, histoplasmosis [*Histoplasma capsulatum*] and cryptococcosis [*Cryptococcus neoformans*], are not ordinarily attended by suppuration, while two others, mucormycosis [*Mucor* spp.] and aspergillosis [*Aspergillus* spp.], may run their course with only acute necrosis or acute inflammation. The superficial fungous infections, represented by dermatomycoses [*Trichophyton*, *Epidermophyton*, and *Microsporum* spp., *Achorion schoenleini*, etc.] and moniliasis [*Candida albicans*], frequently evoke no inflammatory reaction, though this may be present in either an acute or chronic form, while occasionally all the above-mentioned tissue changes are induced.

It is concluded that chronic suppuration with fibrosis is probably the most general tissue change in deep fungous infections, the neutrophil usually being the primary reacting cell. Among the factors responsible for the histological alterations in question are presumed to be the large size of the extraneous organism, the location of the fungus (whether superficial or deep in the body), endotoxins and the chemical constitution of the pathogen, allergy, and the chronic state of the process.

No single tissue change appears to be wholly characteristic or pathognomic of fungous disease.

1063. DELAMATER (E.). **Basic fuchsin as a nuclear stain for fungi.**—*Mycologia*, xl, 4, pp. 423-429, 1 fig., 1948.

Three procedures for staining with basic fuchsin, developed as a result of failure to obtain adequate Feulgen reactions in cytologic studies on fungi pathogenic to man, are described. The studies demonstrated that preliminary acid hydrolysis of the cells to be stained is necessary to increase the specificity of the stain for the nucleus. The stain produced by an aqueous solution of basic fuchsin can be made permanent by the mordanting of hydrolysed cells in 1 to 4 per cent. formalin solution or by combining 2 per cent. formalin with the stain.

1064. SKERMAN (V. B. D.). **Simple techniques for the preparation of mould mounts.**—*Aust. J. exp. Biol. med. Sci.*, xxiv, 4, pp. 319-320, 3 figs., 1946. [*R.A.M.*, xxvi, 499.]

To secure mounts of mould fungi for microscopic examination without disturbance of the mycelium a drop of ether (75 parts) and ethyl alcohol (25) is placed on the culture and permitted to evaporate slightly, after which the moistened area is treated by means of a 4 mm. loop with a drop of 10 per cent. celloidin solution in the ether-alcohol mixture. After one to three minutes the film, with the embedded mycelium, may be stripped off and mounted in lactophenol blue, or the celloidin may be removed by treatment with the ether-alcohol mixture on a hot plate at 45° to 50° C. and the material teased out.

1065. KLIGMAN (A. M.) & ROSENZWEIG (W.). **A simple quantitative method for the laboratory assay of fungicides.**—*J. invest. Derm.*, x, 2, pp. 51-58, 4 figs., 1 graph, 1948.

A simple filter-paper disk method for the laboratory assay of fungicides is described.

1066. SCHATZ (A.) & HAZEN (ELIZABETH L.). **The distribution of soil micro-organisms antagonistic to fungi pathogenic for Man.**—*Mycologia*, xl, pp. 461-477, 3 figs., 1948.

In a study of various soils and compost material for the distribution of micro-organisms antagonistic to fungi pathogenic for man, 124 (51 per cent.) of 243 Actinomycetes were found antagonistic by the agar-streak method to one or more of the test fungi, *Candida albicans*, *Cryptococcus neoformans*, *Trichophyton gypsum*, and *T. rubrum* (*T. purpureum*). Of the cultures tested, 198 were isolated from soils and 45 were previously reported antagonistic to bacteriophage. The data secured from selective plating showed that the percentage of antagonistic bacteria was much lower than that of the antagonistic Actinomycetes. Nutrient broth was markedly inferior to glucose-tryptone and glycerol-yeast extract media for production of culture filtrates with anti-fungal activity. *C. neoformans* was the most sensitive and *Candida albicans* the most resistant to the active culture filtrates by the agar-dilution method. [An abstract of this paper also appears in *Rep. Div. Lab. Res. (ex Rep. N.Y. Dep. Hlth, 1947)*, p. 20, 1947.]

1067. BOHONOS (N.), EMERSON (R. L.), WHIFFEN (ALMA J.), NASH (MARY P.), & DE BOER (C.). **A new antibiotic produced by a strain of *Streptomyces lavendulae*.**—*Arch. Biochem., N.Y.*, xv, 2, pp. 215-225, 1947.

From strain No. 136 of *Streptomyces lavendulae* the authors have isolated antibiotic 136, which resembles streptothricin except in its anti-bacterial spectrum, high broth/agar ratio, and greater toxicity to mice. The maximum dilutions at which 1 gm. of the purified product inhibited 13 human pathogens tested are given.

1068. WALSH (E. N.). ***Tinea nigra* in Panama.**—*Arch. Derm. Syph., N.Y.*, lvii, 4, pp. 732-733, 1948.

Cladosporium wernecki was isolated on Sabouraud's media from sharply defined, flat or slightly depressed, brownish-black lesions on the palm of the hand in three North Americans stationed in the Panama Canal Zone.

1069. SAVONHEIMO (U.). **Clinical observations on cases of actinomycosis.**—*Ann. Med. int. Fenn.*, xxxv, 1, pp. 74-88, 1946.

This is a tabulated account of 21 cases of actinomycosis (*Actinomyces* spp., predominantly *A. [Nocardia] asteroides*) treated at the Central Institute for Radiotherapy, Helsinki, Finland, from 1936 to 1945. All the patients (six women, twelve men, and three children) were connected in some way with agriculture. Decayed teeth and inflamed gums are the principal channels of entry of the fungi, followed by the lungs and intestinal canal. Treatment was mainly by X-rays, usually at an average dose of 1,500 to 2,000 r. per area. Eleven of the 14 patients suffering from the cervico-facial form of the disease benefited by the irradiations, which were unavailing, however, in cases involving the lungs (five), rectum, and mammary gland (one each).

1070. JACOBSON (J. R.) & CLOWARD (R. B.). **Actinomycosis of the central nervous system. A case of meningitis with recovery.**—*J. Amer. med. Ass.*, cxxxvii, 9, pp. 769-771, 1948.

The fungus isolated on Sabouraud's agar from the spinal fluid of a 28-year-old female Japanese patient suffering from meningitis at the Queen's Hospital, Honolulu, Hawaii, was identified by C. W. Emmons as *Nocardia asteroides*. A cure, believed to be the first on record for this disease, was effected by intensive therapy with sulphadiazine, penicillin, and streptomycin.

1071. ARNOLD (H. L.) & AUSTIN (E. R.). 'Diasone' therapy of actinomycosis of the jaw. Report of a case.—*J. Amer. med. Ass.*, cxxxviii, 13, pp. 955-956, 2 figs., 1948.

The writers report the successful therapy of actinomycosis of the jaw in a 40-year-old Filipino cowman at Honolulu, Territory of Hawaii, by means of a four-week course of 'diasone' (disodium formaldehyde sulfoxylate diamino-phenylsulphone), beginning with a daily dose of 1 gm. and increasing each week by 0.3 gm. daily. The authors' attention had already been drawn by Dr. F. Latapi of Mexico City to three cases of successful treatment by the same drug.

1072. PANJA (G.). An unusual case of actinomycosis of cheek.—*Indian med. Gaz.*, lxxxiii, 9, pp. 416-417, 1948.

An apparently new species of *Actinomyces* was isolated in pure culture at the School of Tropical Medicine, Calcutta, from a swelling on the left cheek of a 36-year-old male Hindu. The granules contained finely branching hyphae without clubs, as well as bacillary and coccoid forms. The fungus made slow growth, forming in the course of a fortnight a raised colony about 2 mm. in diameter, with an irregularly lobate margin and radically striated periphery. In a hanging drop of serum broth, finely branching mycelial hyphae, some of them tortuous, were discerned. The fungus was Gram-positive, non-acid-fast, did not form spores, and liquefied Loeffler's serum.

1073. MAGNUS (R. V.). Biochemical aspects of *Actinomyces* of group II B (Ørskov) isolated from the human throat.—*Acta path. microbiol. Scand.*, xxiv, 1, pp. 11-32, 1947.

The author fully describes and discusses his studies at the State Serum Institute, Copenhagen, on the biochemical reactions of 100 strains of *Actinomyces* of group II (B) normally present in the upper respiratory passages in man, with special reference to their fermentative properties. In this respect the organisms fell into three types, herein designated as acid- and alkali-producers and neutral, of which the first-named predominated (66 as against 17 in each of the other two categories), their acidifying tendencies being particularly pronounced on a nitrogenous medium. Acid was produced from the alcohols, inosit, the pentoses, the mono-, di-, tri-, and polysaccharides, and the glucosides. Serologically, the strains under observation were divisible into the three above-mentioned groups. The alkali-producing and neutral groups comprise strains approximating in their fermentative capacities to the soil *Actinomyces*, and a relatively large number developing more freely at 22° than at 27°.

1074. HAZEN (ELIZABETH L.), MARTIN (ALICE J.), & DOGAN (EDITH). A study of strains of *Actinomyces* isolated chiefly from sputum.—*Rep. Div. Lab. Res. (ex Rep. N.Y. St. Dep. Hlth, 1947)*, pp. 79-80, 1947.

A study of 17 cultures of *Actinomyces* is in progress to establish, if possible, a set of criteria suitable for use in the diagnostic laboratory for identification of strains not conforming to the classical *Actinomyces bovis* [*A. israeli*] Wolff-Israel type. Eight were isolated from sputum of six patients, five of whom showed symptoms of chronic pulmonary infection, and nine from various types of specimens, such as pus, body fluids, and sputum. Much difficulty was experienced in identifying certain strains which differed in cultural characters, especially oxygen requirements, from *A. bovis* Wolff-Israel type. A comparative study of the cultural and biological characters of these cultures and *A. bovis* Wolff-Israel is in progress.

1075. KAY (E. B.). **Actinomyces in chronic bronchopulmonary infections.**—*Amer. Rev. Tuberc.*, lvii, 4, pp. 322-329, 1948. [Spanish summary.]

The examination during a six-month period of 240 hospital patients with chronic bronchopulmonary infections revealed the presence of *Actinomyces* in the sputum of 109, and in the exudates obtained bronchoscopically in 65. The organisms were always found in mixed infection and were probably of clinical significance in the development of chronicity only under anaerobic conditions. Therapy by means of drugs and antibiotics (sulphonamides and penicillin), in conjunction with surgical treatment, gave promising results.

1076. GLOVER (R. P.), HERRELL (W. E.), HEILMAN (F. R.), & PFUETZE (K. H.). **Nocardiosis : *Nocardia asteroides* simulating pulmonary tuberculosis.**—*J. Amer. med. Ass.*, cxxxvi, 3, pp. 172-174, 2 figs., 1947.

Of 36 cases of nocardiosis reported in the literature during 1946, only four could be regarded as clear-cut examples of recovery, and in all these sulphonamide therapy in some form was practised in addition to other forms of treatment. The author's patient, a 26-year-old male, in whom the symptoms simulated those of pulmonary tuberculosis, was apparently cured by intensive therapy with sulphadiazine (total of 75 and 1,268 gm. by the intrapleural and oral routes, respectively). It is suggested that the term 'actinomycosis' be restricted to infection caused by *Actinomyces bovis* [*A. israeli*] and that 'nocardiosis' be applied to the disease resulting from attack by *Nocardia asteroides* (formerly known as *A. asteroides*), the agent in the case under discussion.

1077. FINK (R.). **Heilung eines Falles von Lungenaktinomykose mit postpneumonischem aktinomykotischem Empyem durch Bülau-Drainage und Penicillin-Elkosin-Medikation.** [Cure of a case of pulmonary actinomycosis with post-pneumonic actinomycotic empyema by means of Bülau drainage and penicillin-elkosin medication.]—*Schweiz. med. Wschr.*, lxxviii, 1, pp. 19-20, 1 fig., 1948.

A 20-year-old female patient at the Neumünster Hospital, Zollikoberg, Zürich, recovered in four months from an attack of pulmonary actinomycosis, followed by post-pneumonic empyema, through a combination therapy of Bülau drainages and medication with penicillin (total of 1,425,000 units administered intramuscularly) and elkosin (250 gm. orally). Comparable cases from the relevant literature are cited and briefly discussed.

1078. SHORVON (L. M.). **Actinomycosis of the liver with recovery.**—*Lancet*, ccliv, 6499, pp. 439-441, 1948.

Details are presented of a case of actinomycosis (*Actinomyces israeli*) in a nine-year-old boy and of the intensive therapy applied, consisting chiefly of X-rays, penicillin, sulphathiazole, and potassium iodide, supplemented by blood transfusion and vaccine therapy, which resulted in complete recovery in nine months.

1079. BRÁÑEZ CEPERO (E.). **Sobre un caso de actinomicosis hepática.** [On a case of hepatic actinomycosis.]—*Med. colon.*, xii, 2, pp. 83-91, 3 figs., 1948.

This summary of the antecedents, parasitology, histopathology, and hepatic localization of actinomycosis (*Actinomyces*, including *A. bovis* [*A. israeli*]) is based on a biopsy of specimens of a liver abscess in a female child.

1080. ARMAS CRUZ (R.), GAZMURI OJEDA (O.), & VIGOROUX (J.). **Absceso actinomicótico del hígado curado con penicilina.** [Actinomycotic abscess of the liver cured with penicillin.]—*Rev. méd. Chile*, lxxv, 9, pp. 617–619, 1947.

Particulars are given of a case of abscess of the liver (*Actinomyces bovis*) [*A. israeli*] in a 68-year-old farmer, and of its successful treatment by means of penicillin, injected into the pleural cavity and intramuscularly to a total of 5,760,000 units, supplemented by 96 gm. potassium iodide and blood transfusions (1 l. in all).

1081. BONNEY (G. L. W.). **Actinomycosis of the liver : report of an unusual case.**—*Brit. J. Surg.*, xxxiv, 135, pp. 316–318, 1947.

A case of hepatic actinomycosis (*Actinomyces bovis*) [*A. israeli*] in a 39-year-old male patient at the E.M.S. Hospital, Harefield, [Middlesex], was complicated by a long history of recurrent attacks of pleurisy and presented great diagnostic difficulties. Liver involvement may have been secondary to an appendicitis 20 years earlier or to lung disease. Recovery followed treatment by means of massive doses of sulphamerazine (total of 225 gm. between 20th January and 19th March, 1945) and 2,400,000 units penicillin by intramuscular drip, 18th February to 5th March, supplemented by 15 gm. potassium iodide daily from 17th January to 3rd March and 45 gm. daily from 6th to 19th March.

1082. ZETTERGREN (L.). **On the pathogenesis of appendix actinomycosis.**—*Acta path. microbiol. Scand.*, xxv, 5, pp. 543–551, 5 figs., 1948.

A case of actinomycosis of the appendix in a 32-year-old male is reported from Falu, Sweden. Dissection of the organ revealed a concrement in the lumen, the size of a pea and resembling a spiked club. Microscopic examination disclosed the occurrence of chronic appendicitis and the presence of *Actinomyces mycelium*. The fungus is believed to have been concerned in the etiology of the disease.

1083. HOLLIS (W. J.) & HARGROVE (M. D.). **Actinomycosis. A report of twelve cases with special reference to a mediastinal case.**—*N. O. med. surg. J.*, xcix, 10, pp. 499–507, 3 figs., 1947.

The available information on the history, pathogenesis, pathology, symptomatology, diagnosis, prognosis, and treatment of actinomycosis is summarized, with some case reports from the relevant literature. Particulars are further given of 12 cases (six fatal) observed at the Charity Hospital, Shreveport, Louisiana, from November, 1938, to July, 1946. In three cases (including one of special interest involving the posterior mediastinum in a 20-year-old coloured male), benefit was derived from sulphonamide and penicillin therapy. Six of the cases were abdominal, two subcutaneous, and one each cervico-facial, thoraco-abdominal, thoracic, and genital. Of two further cases admitted since the completion of the report, one was osseous and the other thoraco-abdominal. The causal organism was determined in two cases, viz., *Actinomyces* [*Nocardia*] *asteroides* in a 27-year-old coloured female and *A. bovis* [*A. israeli*] in a 75-year-old white male, the former terminating fatally.

1084. GAGE (M.), LYONS (C.), & DE CAMP (P. T.). **Essential therapeutic adjuvants in the surgical arrest of Wolff-Israel actinomycosis.**—*Ann. Surg.*, cxxvi, 4, pp. 568–578, 5 graphs, 1947.

Five bacteriologically demonstrated cases of Wolff-Israel actinomycosis [*Actinomyces israeli*] at the Ochsner Clinic, New Orleans, provide the source material for this discussion. Two of the patients were women and the ages of

the group ranged from 20 to 73. Among the essential therapeutic measures is the administration of penicillin during the period of hospitalization and initial surgical management, sulphonamides (sulphadiazine) being reserved for prolonged medication during convalescence.

1085. MUSKATBLIT (E.). **Primary actinomycosis of the skin: report of a case.**—*Arch. Derm. Syph., Chicago*, lvi, 5, pp. 706–712, 4 figs., 1947.

An apparent clinical cure was effected in a case of primary actinomycosis (*Actinomyces bovis*) [*A. israeli*] of the skin of the face in a 17-year-old girl in New York by the intramuscular injection of 50,000 units of penicillin every three hours up to a total dosage of 10,000,000 units.

1086. HECKENROTH (F.), MATTEI (C.), & MAYAN (L.). **Présence dans une cavernule pulmonaire de grains mycéliens, acido- et alcoolo-résistants, chez un sujet mort de pneumonie.** [Presence of acid- and alcohol-resistant grains in a small pulmonary cavity in a patient who died of pneumonia.]—*Bull. Soc. Path. exot.*, xli, 7–8, pp. 454–458, 1948.

The rod-shaped, acid- and alcohol-resistant mycelial grains, staining vividly with Ziehl's reagent, in a minute cavity in the left lung of a 30-year-old male Algerian native, were tentatively referred to an *Actinomyces*, cultures of which could not be obtained. The fungus is believed to have been responsible for the illness and rapid death of the patient, and the observations, though incomplete, are of interest in view of the rarity of primary pneumomycoses.

1087. ADAMSON (C. A.) & HAGERMAN (G.). **On the treatment of actinomycosis with sulpha drugs and penicillin.**—*Acta med. scand.*, cxxxi, 1, pp. 23–31, 1 graph, 1948.

A case is described of pulmonary actinomycosis (*Actinomyces*) in a 40-year-old male patient at a Stockholm hospital. The initial symptoms were atypical, resembling those of pleuropneumonia, and the correct diagnosis could only be made after eight months. An apparently radical cure was effected by means of combined daily treatments over a four-month period with penicillin (250,000 units), 8 to 10 gm. sulfadital (a sulpha-combination preparation), and 25 gm. urea.

1088. CHANTON (E. F.), HOLLIS (W. J.), & HARGROVE (M. D.). **Actinomycosis: a report of six cases treated with penicillin and sulfadiazine.**—*Sth. med. J.*, xli, 11, pp. 1022–1026, 1948.

Particulars are given of six cases of actinomycosis treated at Shreveport, Louisiana, with a combination of sulphadiazine and penicillin over periods ranging from four to 19 weeks. Three of the patients were men and three women (two males and one female coloured), and *Actinomyces bovis* [*A. israeli*] is specifically mentioned as the causal organism in one. A clinical arrest or cure of the disease was effected in all the cases reported, and only in two was subsequent surgical intervention considered to be necessary or desirable.

1089. NICHOLS (D. R.) & HERRELL (W. E.). **Penicillin in the treatment of actinomycosis.**—*J. Lab. clin. Med.*, xxxiii, 5, pp. 521–525, 1948.

At the Mayo Clinic, Rochester, Minnesota, 46 patients with actinomycosis (*Actinomyces bovis*) [*A. israeli*] were treated with penicillin and followed for periods of one to five years. Of 26 suffering from the cervico-facial form of the disease, 24 derived marked benefit after an average period of therapy of less than two months. Recoveries in cases of pulmonary, abdominal, and pelvic

actinomycosis numbered five out of nine, six out of eight, and three out of three, respectively. All the strains of the fungus cultured from these patients were sensitive to penicillin *in vitro*.

1090. GUILBERT (Y.). **Un cas d'actinomycose cervico-faciale traité uniquement par la pénicilline.** [A case of cervico-facial actinomycosis treated exclusively with penicillin.]—*Rev. Méd. nav.*, iii, 3, pp. 296–298, 1948.

This is a report on the completely successful treatment with penicillin (total dosage of 11,800,000 units) of cervico-facial actinomycosis (*Actinomyces* with yellow 'grains') in a 22-year-old French naval electrician who had spent a long time in the Far East.

1091. HOLM (P.). **Some investigations into the penicillin sensitivity of human-pathogenic Actinomycetes and some comments on penicillin treatment of actinomycosis.**—*Acta path. microbiol. Scand.*, xxv, 3, pp. 376–404, 1948.

At the State Serum Institute, Copenhagen, the author studied 31 human-pathogenic strains of *Actinomyces*, of which 20 are referred to *A. bovis* [*A. israeli*] while the remainder differ from this species in various respects. When suspensions of the fungi were used for penicillin sensitivity tests, the Actinomycetes showed the same degree of sensitivity as staphylococci, but whole fungal colonies fell into two groups, of which one was much more resistant, and the other only slightly so, than the bacteria.

It is suggested that the resistance of the fungi in the body approximates more or less to that found for whole colonies in the laboratory. This would explain the rapid response of some patients to relatively small doses of penicillin and the lengthy period of therapy required in other cases. The significance of the bacteria constantly associated with anaerobic Actinomycetes in the disease products is discussed in relation to penicillin treatment.

1092. MOULE (G. R.) & SUTHERLAND (A. K.). **Mycotic dermatitis of cattle.**—*Aust. vet. J.*, xxiii, pp. 95–97, 1947. [*V.B.*, xviii, 296.]

Actinomyces dermatonomus was found on six occasions in Queensland in young male and female beef and dairy cattle which had attained sexual maturity. Lesions occurred all over the body and legs and consisted of horny, brown or cream scabs 1 in. in diameter and $\frac{1}{2}$ in. thick, with copious exudate and a moist, raw surface beneath. Only severely affected animals showed systemic effects, and they gradually lost condition. Diagnosis was based on the characteristic scabs and the presence of the Gram-positive mycelia and spores in smears.

1093. LUQUE (F. G.). **Streptothricosis bovina en Colombia.** [Bovine streptothricosis in Colombia.]—*Rev. Med. vet.*, Bogotá, xv, pp. 1–19, 1946. [*V.B.*, xviii, p. 110.]

Chronic lymphangitis of cattle near Bogotá was ascertained to be due to *Actinomyces farcinicus*. The lesions resembled those described in the United States as skin tuberculosis, and affected animals gave a positive reaction to the tuberculin test. Cases responded to surgical treatment, and penicillin appeared to give satisfactory results.

1094. PRIDHAM (T. G.) & GOTTLIEB (D.). **The utilization of carbon compounds by some Actinomycetales as an aid for species determination.**—*J. Bact.*, lvi, 1, pp. 107–114, 1948.

Twenty-seven isolates of organisms belonging to the genera *Streptomyces*, *Actinomyces*, and *Micromonospora* were tested for their ability to utilize 33

different carbon compounds as a source of carbon in a chemically defined medium. The results obtained with the antibiotic-producing *Streptomyces* and others indicate that such reactions can assist species identification. All the *Streptomyces* studied were found to utilize D-glucose, D-mannose, starch, dextrin, and glycerol, but not erythritol, phenol, *o*-cresol, *m*-cresol, *p*-cresol, sodium formate, sodium oxalate, or sodium tartrate. Reactions to the other carbon compounds varied with the different species.

1095. WOLF (F. T.). **Relation of various fungi to otomycosis.**—*Arch. Otolaryngol.*, xlv, 3, pp. 361–374, 1947.

At least 53 different species of fungi have been reported as agents of otomycosis, but the dubious accuracy of the identifications in many cases and the lack of conclusive evidence as to pathogenicity necessitate (1) determinations of the normal microbiological flora of the aural canals of a large number of healthy human subjects; (2) competent microbiological identifications of cultures obtained from diseased ears; (3) properly controlled animal inoculation experiments to ascertain the pathogenicity of all such cultures; and (4) physiological studies of pure cultures of the organisms. A seven-page bibliography is appended.

1096. DRAKE (C. H.). **The pathogenicity of *Aspergillus nidulans*.**—*Mycopathologia*, iv, 2, pp. 103–119, 1 pl., 1948.

The author's studies showed that *Aspergillus nidulans* is pathogenic to rabbits by intravenous inoculation. Purulent inflammation with abscess formation follows the initial injection, but after ten days or more the abscesses regress or show a progressive granulomatous change. The lesions following a primary injection occur usually in the kidney. Subsequent injections may give rise to tubercles without previous abscess formation, and the lesions arising from them are most common in the lungs. After about the same time interval as that preceding the formation of tubercles and granulomatous tissue, the rabbits develop a hypersensitivity of the tuberculin type. Also, after about the same interval, the fungi in the lesions undergo a morphological change leading to the formation of actinomycetoid granules instead of normal mycelium.

Repeated intraperitoneal injection of guinea-pigs with conidia at brief intervals leads to progressive decline and death, but no tissue invasion or fungal growth can be demonstrated.

1097. CAWLEY (E. P.). **Aspergillosis and the Aspergilli: report of a unique case of the disease.**—*Arch. int. Med.*, lxxx, 4, pp. 423–434, 4 figs., 1947.

Following a general discussion on aspergillosis and the *Aspergilli*, the author reports what is believed to be a unique case of the disease intermittently affecting a boy at Ann Arbor, Michigan, from the age of $2\frac{1}{2}$ to $7\frac{1}{2}$ years, when death supervened. The necropsy disclosed abscesses in the brain, dura, heart, lungs (the primary site of involvement), mediastinum, lymph nodes, spleen, liver, right kidney, and right ankle. Decubital ulcers were present over the sacrum and the right posterior-superior iliac region of the spine. *Aspergillus fumigatus* was repeatedly cultured from various sites.

1098. GERSTL (B.), WEIDMAN (W. H.), & NEWMANN (A. V.). **Pulmonary aspergillosis: report of two cases.**—*Ann. intern. Med.*, xxviii, 3, pp. 662–671, 7 figs., 1948.

Full clinical details are given of two cases of pulmonary aspergillosis in patients in Connecticut sanatoria, one a 33-year-old female and the other a 62-year-old male. The causal organism in the former was a fungus resembling

Aspergillus and in the latter *A. fumigatus* (identified by Dr. K. B. Raper from tissue removed at autopsy). The first case, which ended in recovery, may be interpreted as a bronchiectatic cyst harbouring a growth of *Aspergillus*, whereas the second should apparently be classed as systemic aspergillosis.

1099. NORDEN (A.). **Lungaspergillos.** [Pulmonary aspergillosis].—*Nord. Med.*, xxxviii, 39, pp. 1683–1685, 4 figs., 1948. [English summary.]

Aspergillus fumigatus was isolated on Sabouraud's agar from the sputum of a 73-year-old male patient at the Central Hospital, Örebro, Sweden, suffering from an acute pulmonary disease with symptoms suggestive of pneumonia. The diagnosis was subsequently confirmed in 13 consecutive samples by the Centraalbureau voor Schimmelcultures, Baarn, Holland. Extracts of the fungus induced no cutaneous reaction. Treatment with iodine resulted in a rapid improvement of the general condition. Examination of the spore content of the air in the patient's home revealed the presence of *A. fumigatus* in the cellar. Intravenous injections of suspensions of the fungus were pathogenic to rabbits.

1100. NICOD (J. L.). **Hyphomycose (aspergillose) méningée.** [Meningitic hyphomycosis (aspergillosis)].—*Schweiz. Z. Path. Bakt.*, ix, 6, pp. 673–680, 4 figs., 1946.

A full description is given of an unusual case of meningitis, attributed to a species of *Aspergillus*, in a 46-year-old carpenter at Lausanne.

1101. ROOKS (R.). **A device for the electrostatic precipitation of pollen and fungus spores upon a counting slide.**—*J. Allergy*, xix, 3, pp. 206–209, 1 fig., 1948.

A portable electric precipitator is described for the volumetric sampling of air-borne pollen and fungus spores by the slide method. The instrument is also readily adaptable to the determination of air-borne bacteria and fungus spores on culture plates. In tests with *Penicillium* spores a sampling efficiency of 92 per cent. was obtained by electrostatic precipitation on glycerine jelly as against 52 per cent. by impingement on petroleum jelly. From these preliminary data the application of electrostatic precipitation to both the culture plate and slide methods appears to provide a new, effective, and convenient experimental approach to certain problems involving air-borne pollen and fungus spores.

1102. BOHRD (M. G.). **Classification of the histologic reactions in allergic diseases.**—*Amer. J. Med.*, iii, 5, pp. 511–522, 1947.

In this paper (one of a series forming a symposium on allergy), sporotrichosis [*Sporotrichum schencki*] and coccidioidomycosis [*Coccidioides immitis*] are classified as almost certainly of allergic origin, while histoplasmosis [*Histoplasma capsulatum*] is included in a group of diseases for which allergy has been suggested as a cause, but the evidence is regarded as unconvincing.

1103. BERGMANN (F.) & SCHWARTZ (M.). **House dust and fungus allergy.**—*Acta path. microbiol. Scand.*, xxiv, 1, pp. 76–85, 1947.

From the house dust of 22 asthma out-patients at the State Hospital, Copenhagen, 239 fungi were isolated in pure culture on Sabouraud's agar, including 117 *Penicillium*, 36 *Aspergillus*, 29 *Mucor*, 19 *Alternaria*, and 15 *Fusarium*. Six patients proved to be allergic to intracutaneous tests with fungal extracts from samples of their own dust. The predominant fungi usually induced cutaneous reactions. The persons allergic to fungi mostly reacted similarly to house dust, but the reverse did not apply, and it is con-

cluded that hypersensitivity to house dust can scarcely be attributed to mould allergens.

1104. LITTMAN (M. L.), WICKER (E. H.), & WARREN (A. S.). **Systemic North American blastomycosis. Report of a case with cultural studies on the etiologic agent and observations on the effect of streptomycin and penicillin in vitro.**—*Amer. J. Path.*, xxiv, 2, pp. 339–356, 5 pl., 1948.

The autopsy on a 20-year-old coloured male labourer who succumbed to North American blastomycosis (*Blastomyces dermatitidis*) at the Charity Hospital, New Orleans, Louisiana, revealed involvement of the skin, various internal organs, bone, meninges, superior sagittal sinus, and brain. Histopathologic examination showed widespread abscesses and granulomatous foci.

Budding cell forms of the fungus in cultures isolated from exudates and from organs obtained at autopsy ranged from 5·7 by 4·6 to 16·4 by 12·8 μ , while the corresponding dimensions in different parts of the body were 6·6 by 4·6 to 14 by 12·3 μ .

Two strains of *B. dermatitidis* proved resistant to streptomycin and penicillin concentrations up to 200 units per c.c., so that these antibiotics are unlikely to be of value in the therapy of blastomycosis.

1105. HEILMAN (F. R.). **Experimental production of rapidly fatal blastomycosis in Mice for testing chemotherapeutic agents.**—*J. invest. Derm.*, ix, 2, pp. 87–90, 1947.

Uniform and rapidly fatal infections have been induced in mice by the intravenous injection of the yeast-like and of the mycelial form of two different strains of *Blastomyces dermatitidis*. The time of death, which was due to embolic pneumonia, was directly related to the number of organisms administered.

1106. DELAMATER (E.). **The nuclear cytology of *Blastomyces dermatitidis*.**—*Mycologia*, xl, 4, pp. 430–444, 5 figs., 1948.

A study of the nuclear cytology of 14 strains of *Blastomyces dermatitidis* is described. Comparable results were obtained with iron alum haematoxylin, basic fuchsin mordanted with formaldehyde, and with a new staining method [No. 1063]. The observations made indicate that the organism undergoes vegetative nuclear division in a manner comparable to that of other fungi.

1107. BENBROOK (E. A.), BRYANT (J. B.), & SAUNDERS (L. Z.). **A case of blastomycosis in the Horse.**—*J. Amer. vet. med. Ass.*, cxii, 855, pp. 475–478, 3 figs., 1948.

Although no cultures were obtained, the fungus responsible for abscesses on the udder of a six-year-old Belgian mare in Iowa is believed to have been *Blastomyces dermatitidis*. The morphological characters of the organism agreed with those of a specimen from a human case, and the authors' diagnosis was regarded by R. D. Baker, of the Medical College of Alabama, as 'reasonably secure'.

1108. NICKERSON (W. J.). **Ethylene as a metabolic product of the pathogenic fungus, *Blastomyces dermatitidis*.**—*Arch. Biochem.*, N.Y., xvii, 2, pp. 225–233, 2 figs., 1 graph, 1948.

It has been demonstrated that a gaseous metabolic product of *Blastomyces dermatitidis* is capable of reducing potassium permanganate. Assuming this

product to be ethylene, it is estimated that a 3-l. liquid culture yields about 420 mg. in 30 days. Using the 'triple response' reaction of Alaska pea seedlings, generally agreed to be a specific biological test for small concentrations of ethylene, gaseous metabolic products of *B. dermatitidis* were shown to cause a typical ethylene reaction in the plants.

Gaseous metabolic products of *B. dermatitidis* and *B. [Paracoccidioides] brasiliensis* inhibited the growth of pea seedlings in the light (ethylene-like reaction). Similar products of the yeast and mycelial phases of *B. dermatitidis*, and of the mycelial phase of *Histoplasma capsulatum*, inhibit to a great extent the germination of peas and cause diageotropism in such seedlings as do emerge.

Based on the known action of ethylene in stimulating chlorophyll decomposition in the ripening of fruit, some speculations are presented as to the possible function of the gas in the pathogenesis of blastomycosis and histoplasmosis.

1109. SOLOTOROVSKY (M.) & BUGIE (ELIZABETH J.). **The effect of streptothricin on systemic infection with *Cryptococcus neoformans* in Mice.**—*J. Immunol.*, lx, 4, pp. 497–502, 1948.

Streptothricin has been shown to retard the progress of infection by *Cryptococcus neoformans* in the mouse, a single dose as low as 100 units or repeated doses of 25 per animal sufficing to prolong survival significantly. There were no external signs of toxicity at the lower drug levels. Streptothricin may therefore be of use as a positive control for the rapid and economical evaluation of anti-fungal agents *in vivo*. Its application in the therapy of fungal infections of man, however, is not suggested in view of the systemic toxicity reported.

1110. DANOWSKI (T. S.) & TAGER (M.). **Thiourea and the inhibition of growth of fungi.**—*J. infect. Dis.*, lxxxii, 2, pp. 119–125, 1948.

On a Sabouraud's dextrose agar medium free of blood or serum thiourea inhibited the growth of various pathogenic fungi to a varying extent. *Cryptococcus hominis* [*C. neoformans*] proved particularly sensitive to the action of the drug, its growth being retarded by concentrations of 5 to 50 mg. per cent. according to the amount of inoculum, whereas *Coccidioides immitis* was much more refractory. Thiourea did not influence the course of experimental infection of mice by these two fungi.

1111. TAGER (M.) & DANOWSKI (T. S.). **Inhibition of the growth of fungi by thiourea derivatives, particularly hydrazine dithiocarbamyl.**—*J. infect. Dis.*, lxxxii, 2, pp. 126–130, 1948.

In a series of thiourea derivatives tested *in vitro* against *Cryptococcus hominis* [*C. neoformans*], dithiocarbamyl hydrazine and thiocarbamyl hydrazine at 40 mg. per cent. suppressed growth in the presence of serum. The former compound, moreover, effectively inhibited the development of nine out of 15 pathogenic fungi with or without the addition of serum to the medium, viz., *Blastomyces dermatitidis*, *C. neoformans*, *E[pidermophyton] floccosum*, *H[istoplasma] capsulatum*, *M[icrosporium] audouinii*, *P[aracoccidioides] brasiliensis*, *T[richophyton] gypseum*, *T. purpureum*, and *T. [Achorion] schoenleinii*. However, it did not improve the condition of mice experimentally infected with *B. dermatitidis* and *C. neoformans* its administration being, in fact, attended by toxic manifestations. Thiocarbamyl hydrazine, though effective *in vitro*, was unstable in aqueous solution and highly toxic to mice.

1112. LACROIX (L. J.), RISER (W. H.), & KARLSON (A. G.). **Blastomycosis in the Dog. A case report.**—*N. Amer. Vet.*, xxviii, pp. 603–604, 606, 1947. [V.B. xviii, 491.]

Post-mortem examination of the lungs of a cross-bred collie which had shown difficulty in swallowing and a purulent discharge from the eyes revealed miliary nodules throughout. The mediastinal lymph nodes were enlarged, but all other organs were normal. Budding organisms identified as *Blastomyces* were observed, some within giant cells.

1113. DROUHET (E.) & SEGRÉTAİN (G.). **Sur l'action de la lactoflavine à l'égard de *Torulopsis histolytica* (= *T. neoformans*) et d'autres champignons pathogènes.** [On the action of lactoflavin in relation to *Torulopsis histolytica* (= *T. neoformans*) and other pathogenic fungi.]—*C. R. Soc. Biol., Paris*, cxlii, 5–6, pp. 316–318, 1948.

Lactoflavin itself was shown to be without effect on the growth of cultures of *Torulopsis histolytica* [*Cryptococcus neoformans*] from a fatal case of human meningitis on standard media, and the inhibitory action of belafavin Roche (5 mg. lactoflavin in a special solution) on this pathogen, and to a lesser extent on *Candida albicans* and *C. krusei*, was found to be due exclusively to the solvent. *In vivo* experiments on mice previously inoculated with culture suspensions of the fungus (0.3 c.c.) confirmed the results of the *in vitro* tests, the oral administration of lactoflavin proving ineffectual, or even favourable to a lethal outcome of the disease, while the toxicity of belafavin was such that it could only be used at weak dosages which failed to arrest the spread of infection.

1114. SEGRÉTAİN (G.) & DROUHET (E.). **L'action de la streptomycine sur *Torulopsis histolytica* (= *Torulopsis neoformans*) in vitro et in vivo.** [The action of streptomycin on *Torulopsis histolytica* (= *Torulopsis neoformans*) *in vitro* and *in vivo*.]—*C. R. Soc. Biol., Paris*, cxlii, 5–6, pp. 319–320, 1948.

Streptomycin alone or mixed with penicillin at 10 to 5,000 units per c.c. exerted no antibiotic effect on cultures of the strain of *Torulopsis histolytica* [*Cryptococcus neoformans*] mentioned in the preceding entry. Daily injections of 5,000 units of streptomycin for ten days also failed to arrest the spread of infection in mice previously inoculated with culture suspensions of the fungus.

1115. BECK (E. M.) & MUNTZ (H. H.). **Experimental therapy of generalized torulosis in Rats with streptomycin.**—*J. Lab. clin. Med.*, xxxiii, 9, pp. 1159–1160, 1948.

At the Indiana University School of Medicine, 47 rats were inoculated with *Torula histolytica* [*Cryptococcus neoformans*]: of these 26 were treated with subcutaneous injections of streptomycin (3,000 units over a period of 21 days), while 21 served as controls. After ten weeks 16 (61.6 per cent.) of the treated and seven (33.3 per cent.) of the control group were still surviving. In this experiment, therefore, the drug appears to have exerted a beneficial effect on torulosis.

1116. SOBELS (JOHANNA). **Sur un extrait aqueux de Myxomycètes, empêchant la croissance de *Torulopsis histolytica*.** [On an aqueous extract of Myxomycetes inhibiting the growth of *Torulopsis histolytica*.]—*C. R. Acad. Sci., Paris*, ccxxvi, 12, pp. 1030–1032, 2 figs., 1948.

To each culture of *Torulopsis histolytica* [*Cryptococcus neoformans*] on malt extract agar in Petri dishes were added four blocks, 1 cm. by several mm., of

water agar impregnated for 48 hours with an aqueous extract of plasmodia of the Myxomycetes *Badhamia utricularis* and *Fuligo* spp. After 24 hours the fungus had made no growth on the portions of the plate covered by the impregnated blocks, nor did it develop after their removal; on the other sections of the surface, as well as on the control dishes partially covered with untreated blocks of water agar, the pathogen grew normally.

1117. MAGAREY (F. R.) & DENTON (P. H.). **Torula histolytica infection of central nervous system.**—*Brit. med. J.*, 1948, 4561, pp. 1082–1083, 2 figs., on pl., 1948.

A case of torular meningitis (*Torula histolytica*) [*Cryptococcus neoformans*] in a 60-year-old male patient at the Cardiff Royal Infirmary is reported. The implication of the fungus was only revealed by the necropsy, the illness having been diagnosed during life as either a cerebral tuberculoma or tuberculous meningitis.

1118. REILLY (E. B.) & ARTMAN (E. L.). **Cryptococcosis: report of a case and experimental studies.**—*Arch. intern. Med.*, lxxxi, 1, pp. 1–8, 1 graph, 1948.

A case of cryptococcosis (*Cryptococcus hominis*) [*C. neoformans*] in a 14-year-old girl at Los Angeles, California, is fully described. Its course is believed to have been substantially modified in the patient's favour by sulphonamide therapy. In experiments on white rats to determine the value of various drugs in the treatment of the disease, animals previously infected with the fungus and clinically appearing well gave no sign of having developed antibody protection against the organism. The life expectancy of animals treated with sulphadiazine and penicillin was increased from 11.4 to 28.9 and 22.6 days, respectively. No advantage resulted from the joint administration of the two drugs. Streptomycin increased the life expectancy of the animals to 28 days.

1119. NATVIG (A. T.). **A case of blastomycosis of the scalp.**—*Acta dermat.-vener., Stockh.*, 1945, pp. 477–488, 1945. [Abs. in *Dermatol. & Venereol. (Excerpta med., Sect. xiii)*, ii, 1, p. 25, 1948.]

A case of scalp infection with a secondary lymph node abscess on the neck is reported. *Cryptococcus hominis* [*C. neoformans*] and *Staphylococcus aureus* were isolated from the pus of the ulcer, the latter organism being regarded as a secondary invader. The patient responded satisfactorily to sulphathiazole, potassium iodide, and X-ray therapy.

1120. SEGRÉTAİN (G.) & DROUHET (E.). **Mycose expérimentale à *Torulopsis histolytica*.** [Experimental mycosis due to *Torulopsis histolytica*.]—*Ann. Inst. Pasteur*, lxxiii, 12, pp. 1161–1166, 2 pl., 1947.

Particulars are given of the reactions of mice and guinea-pigs to inoculation with a strain of *Torulopsis* [*Cryptococcus*] *neoformans* from the cephalo-rachidian fluid of a human case of meningitis, and of the aspect of the parasite in the lesions thus induced. The fungus proved innocuous to rabbits.

1121. BROCKMAN (D. D.). **The in vitro effect of atabrine on *Cryptococcus neoformans*.**—*Amer. J. trop. Med.*, xxviii, 2, pp. 295–297, 1948.

Atabrine is fungicidal *in vitro* to *Cryptococcus neoformans* at concentrations of 25 to 50 mg. per cent. and fungistatic at 3 to 25 mg. Toxic reactions are obtained, however, with much lower plasma or tissue concentrations, so that the drug would appear to be of little or no value in the therapy of cryptococcosis.

1122. KLIGMAN (A. M.). **Studies of the capsular substance of *Torula histolytica* and the immunologic properties of *Torula* cells.**—*Amer. J. trop. Med.*, xxvii, 4, pp. 395–401, 1947.

A method for the isolation of the capsular substance of *Torula histolytica* [*Cryptococcus neoformans*] is described. The capsular substance appears to be a polysaccharide and is non-antigenic for rabbits and mice. No demonstrable serologic response or skin sensitivity developed in these animals following injection with living, heat- or phenol-killed, or decapsulated cells.

1123. CIFERRI (R.) & REDAELLI (P.). ***Torula morrhuae*, another synonym of *Sporendonema epizoum* (Corda) Cif. et Red.**—*Mycopathologia*, iv, 2, pp. 137–138, 1948.

This further list of synonyms of *Sporendonema epizoum* (Desm.) Cif. & Red. (1934) comprises *Torula morrhuae* (Farl.) Sacc. apud Trotter (1931).

1124. CIPRIANI (P.). **Comportamento dei Blastomiceti di fronte al metodo di colorazione proposto da Dold.** [The behaviour of Blastomycetes in relation to the staining method proposed by Dold.]—*Mycopathologia*, iv, 2, pp. 187–189, 1948. [English summary.]

Applied to various Blastomycetes Dold's staining method (*Zbl. Bakt.*, Abt. 1, cxxiv, p. 220, 1932) in every instance gave positive results. With *Geotrichum candidum* the hyphae were mostly Dold-positive and Gram-negative, whereas the arthrospores were mostly Dold-negative. Further tests demonstrated that neither the nature and composition of the medium nor the age of the culture influenced this Dold-positive reaction of Blastomycetes.

1125. NIŽNÁNSKY (F.) & KVAPIL (K.). **Niekoľko prípadov epizootickej lymfagitídy na Slovenska.** [Some cases of lymphangitis epizootica in Slovakia.]—*Čas. československ. Vet.*, ii, pp. 279–281, 1947.

Cryptococcus farciminosus was introduced into Slovakia on horses during the war; between the close of hostilities and May, 1947, six cases were identified.

1126. MADEIRA (J. A.), LACAZ (C. DA S.), & FORATTINI (O. P.). **Considerações sobre um caso de blastomicose (granulomatose paracoccidioidica) generalizada, com o isolamento do 'Paracoccidioides brasiliensis' a partir do sangue circulante.** [Reflections on a case of generalized blastomycosis (paracoccidioidial granuloma), with the isolation of *Paracoccidioides brasiliensis* from the blood stream.]—*Hospital, Rio de J.*, 1947, June, pp. 845–854, 5 figs., 1947. [English summary.]

Paracoccidioides brasiliensis was isolated on Sabouraud's liquid medium from the blood stream of a 26-year-old male patient suffering from generalized blastomycosis at the Dermatological Clinic, São Paulo, and cultured on blood agar at 37° C. The colonies, floccose at first, readily assumed a cerebriform aspect. The numerous forms observed under the microscope closely resembled those encountered in the tissues.

1127. DE ALMEIDA (F.), LACAZ (C. DA S.), & CUNHA (A. C.). **A terapêutica da blastomicose sul-americana e o seu controle de cura.** [The therapy of South American blastomycosis and the verification of its cure.]—*Rev. brasil. Med.*, iii, 3, pp. 187–192, 1946. [English summary. Received January, 1948.]

Very encouraging results have been obtained by the authors and others in the therapy of South American blastomycosis (*Paracoccidioides brasiliensis*), excluding the visceral forms, with a mixture of sulphadiazine and an anti-

mycotic vaccine. In serious cases the treatment must be given intermittently until a clinical cure is reached.

1128. BOGLIOLO (L.). **Sulla morfologia e sul modo di riproduzione del 'Paracoccidioides brasiliensis' (Splendore) Almeida, 1930, nel suo ciclo parassitario.** [On the morphology and mode of reproduction of *Paracoccidioides brasiliensis* (Splendore) Almeida, 1930, in its parasitic cycle.]—*Pathologica*, xxxix, 636, pp. 97–114, 1 pl., 20 figs., 1947. [French, German, and English summaries.]

At the Faculty of Medicine, Belo Horizonte, Brazil, the author examined material from 48 cases of Lutz's disease or Brazilian blastomycosis (*Paracoccidioides brasiliensis*), for which purpose the method of impregnation by ammoniacal silver proved to be the best of those tested [No. 511]. The normal reproductive method of the fungus is by gemmation, zoospores or cryptospores being formed neither in human tissues nor in those of guinea-pigs. Gemmation appears to be effected in two different ways, one simple, consisting merely of chains of variable numbers of elements, and another in which the entire surface of the mother cell is involved and large numbers of buds are formed in three or four successive stages until the entire cell is exhausted; often, but not invariably, the gemmae separate from the mother cell at an immature stage (gemmulae). This mode of reproduction, known as multiple gemmulation, seems to be preceded by extensive changes in the nuclear substance: it is more frequent than the simple in the lymphatic glands and spleen but rare or absent in the other organs, notably the lungs, and ulcerated skin. In these latter cases it may be impossible to differentiate between South American blastomycosis and Gilchrist's disease (*Gilchristia* [*Blastomyces*] *dermatitidis*).

1129. LACAZ (C. DA S.), ASHCAR (H.), COSTA (O.), & VIOTTI (M. R.). **Ação da estreptomicina 'in vitro' sobre o Paracoccidioides brasiliensis. Ensaio terapêutico na blastomicose sul-americana.** [The action of streptomycin *in vitro* on *Paracoccidioides brasiliensis*. Attempts to use it in the treatment of South American blastomycosis.]—*Hospital, Rio de J.*, xxxiii, 5, pp. 693–703, 2 figs., 1948. [*T.D.B.*, xlv, 1107.]

In vitro studies showed that high concentrations (5,000 units per ml. and upwards) of streptomycin inhibited the growth of *Paracoccidioides brasiliensis* in its lag phase or phase of logarithmic growth. It was also found that the fungus may exercise an inhibitory effect upon streptomycin. Treatment of a case of generalized ganglionar blastomycosis (29 m. in all, 1·5 per diem) did not cause the lesions to recede, but the general condition remained stationary. The paper concludes by adducing evidence to show the low therapeutic value of streptomycin in cases of blastomycosis.

1130. ALEIXO (J.) & FURTADO (T. A.). **Micose de Lutz de início possivelmente dentário. (Relato de cinco casos.)** [Lutz's mycosis of possibly dental origin. (Report of five cases.)]—*Brasil-méd.*, lxii, 29–31, pp. 265–268, 6 figs., 1948. [English summary.]

In the five cases of South American blastomycosis herein reported from Belo Horizonte, Brazil, the causal organism, *Paracoccidioides brasiliensis*, apparently originated in the dental or peridental regions.

1131. GUNCHE (F. F.), RADICE (J. C.), & FEOLI (L. S. J.). **Blastomicosis primitiva de boca (Paracoccidioides brasiliensis).** [Primary blastomycosis of the mouth (*Paracoccidioides brasiliensis*).]—*Semana méd.*, lv, 43, pp. 866–869, 4 figs., 1948.

Clinical details are given of a case of primary blastomycosis of the buccal

cavity caused by *Paracoccidioides brasiliensis* in a 33-year-old male in Buenos Aires.

1132. DA CUNHA MOTTA (L.). **Paracoccidioidal granulomatosis. Cardiac localization in a case of generalized form.**—*Amer. J. Path.*, xxiv, 2, pp. 323–331, 3 pl., 1948.

A case of paracoccidioidal granulomatosis (*Paracoccidioides brasiliensis*), terminating in acute sepsis, in a 38-year-old Japanese male is reported from São Paulo, Brazil. The fungus was found reproducing in the circulating blood. Specific myocardial and epicardial lesions are reported for the first time. The renal lesions were of the haematogenic focal nephritic type. The multiple lesions occurring in several organs, including the skin, demonstrate the acute haematogenic dissemination of the infection.

1133. FURTADO (T. A.) & PELLEGRINO (J.). **A terapêutica da blastomicose sul-americana. Ensaio 'in vitro' com a estreptomycina.** [The therapy of South American blastomycosis. *In vitro* experiments with streptomycin.]—*Brasil-méd.*, lxii, 8–9, pp. 54–56, 1948. [English summary.]

At the Santa Casa da Misericórdia Hospital, Belo Horizonte, Brazil, 14 cases of South American blastomycosis (*Paracoccidioides brasiliensis*) were treated with sulphathiazol or sulphadiazine (4 gm. daily for a minimum period of three months). Of these, four succumbed to generalized blastomycosis, three showed no improvement, four were slightly, and two (both children) markedly benefited; in only one case did a clinical cure with disappearance of the lesions result.

In *in vitro* experiments, streptomycin proved fungistatic (but not fungicidal) when added daily to the medium for 11 days at the rate of 400 mg. per c.c.

1134. QUIROGA (M. I.), NEGRONI (P.), & CORDERO (A. A.). **Resultados de la terapéutica sulfamídica asociada a la vacunoterapia específica en cuatro nuevas observaciones de blastomicosis sudamericana.** [Results of sulphamide treatment associated with specific vacunotherapy in four new cases of South American blastomycosis.]—*Rev. argent. Dermatosisif.*, xxxi, 3–4, pp. 566–572, 4 figs., 1947.

Four new cases of South American blastomycosis (*Paracoccidioides brasiliensis*) are reported from Buenos Aires, all in males aged, respectively, 53, 45, 37, and 47. Two of the patients had probably contracted the disease in São Paulo, Brazil, one in Eucarnación, Paraguay, and the fourth in Chaco, Argentina. Cures were effected in each case by means of sulphamide drugs combined with the administration of the specific vaccine and appropriate vitamins.

1135. LACAZ (C. DA S.), SILVA (M. S.), & FERNANDES (M.). **Ação da tirotricina 'in vitro' sobre o *Paracoccidioides brasiliensis*. Ensaio terapêutico na 'blastomicose sul americana.** [Action of tyrothricin *in vitro* on *Paracoccidioides brasiliensis*. An attempt at therapy of South American blastomycosis.]—*Rev. brasil., Med.*, iii, 5, pp. 356–360, 6 figs., 1946. [English summary. Received January, 1948.]

Tyrothricin was shown to exert a fungicidal action on cultures of *Paracoccidioides brasiliensis* in the 'lag' or latent phase of growth, whereas its effect on those in the logarithmic phase is merely fungistatic. Notwithstanding its favourable laboratory performance, however, the drug has only a limited value in practical therapy, since its toxic and haemolytic properties restrict its utility to local applications. Used in this way, and with due regard to the latent phase of the pathogen, tyrothricin may prove a helpful adjuvant, but

sulphamido-therapy remains the method of choice for the treatment of South American blastomycosis.

1136. CAMPOURCY (A.). **Chromoblastomycose au Cameroun.** [Chromoblastomycosis in the Cameroons.]—*Bull. Soc. Path. exot.*, xl, 7-8, pp. 252-253, 1 fig., 1947.

The fungus isolated on Sabouraud's agar from ulcers on the feet of a 25-year-old native of the Cameroons suffering from elephantiasis of the lower limbs formed dense colonies covered with a dark green 'duvet', which was shown by microscopic examination to consist of septate hyphae bearing oval conidia. It appears to be identical with the agent of chromoblastomycosis, referred by Langeron to *Phialophora*. Negative results were given by inoculation experiments on rabbits and guinea-pigs.

1137. CALERO (C.). **Chromoblastomycosis in Panama : report of a new case and a new clinical form.**—*Arch. Derm. Syph., Chicago*, lvii, 2, pp. 266-271, 4 figs., 1948.

The case of chromoblastomycosis (*Fonsecaea pedrosoi* var. *communis*) [*Phialophora pedrosoi*] herein reported in a 30-year-old male patient at the Santo Tomás Hospital, Panama, is considered to represent a new clinical form of disease, of eczematoid aspect, associated with the verrucous type of lesion.

1138. CALERO (C.). **Cromoblastomicosis. Acción in vitro de las sulfas sobre tres razas fungosas encontradas en el Istmo de Panamá.** [Chromoblastomycosis. The action *in vitro* of the sulphonamides on three fungal strains encountered in the Isthmus of Panama.]—*Rev. Inst. Salubr. Enferm. trop.*, viii, 2, pp. 119-123, 1947. [*T.D.B.*, xlv, 269.]

Tests of the effect of four sulphonamides on the growth of three strains of *Fonsecaea* [*Phialophora*] *pedrosoi* from Panama indicated that sulphapyridine produced the most marked inhibitory effects. These drugs appeared to inhibit sporulation to some extent, especially on the *Phialophora* type; the effect was less noticeable on the *Acrotheca* type and much less so on the *Hormodendrum* type.

1139. HICKS (J. D.). **Chromoblastomycosis : report of a case.**—*Med. J. Aust.*, xxxiii, 20, pp. 705-706, 2 figs. (facing p. 699), 1946.

A case of chromoblastomycosis (the third record for Australia) is reported in a 42-year-old soldier stationed in the Northern Territory for 2½ years, during which period he was in frequent prolonged contact with natives, including lepers and consumptives. The oval nodule excised from the medial condyle of the right femur measured 1.25 by 0.75 cm., and in histological preparations the centre of the pseudotubercles, with or without Langhans giant cells formed by groups of epithelial cells, was often occupied by a circular or convoluted, highly refractile, yellow or brown cell, about 10 μ in diameter, with a thick, double-contoured wall.

1140. STUDY (R. S.) & MORGENSTERN (P.). **Coexisting pulmonary coccidioidomycosis and tuberculosis.**—*New Engl. J. Med.*, cccxxxviii, 24, pp. 837-838, 3 figs., 1948. [*T.D.B.*, xlv, 814.]

Coccidioidal cavitation was observed in a patient who later developed a caseous cavitary tuberculosis in the opposite lung. It is advisable to carry out routine checks for both tubercle bacilli and *Coccidioides immitis* in all patients with pulmonary cavitation.

1141. LAMPHIER (T. A.). **Localized coccidioidal osteomyelitis.**—*New Engl. J. Med.*, cccxxxviii, 5, pp. 150–152, 1 fig., 1948.

A case of localized coccidioidal infection (*Coccidioides immitis*) in the os calcis of a 39-year-old soldier in the Army of the United States is presented. Neither general nor local therapy proving effective, the extremity was amputated with completely satisfactory results.

1142. HARVEY (N. A.). **Progressive coccidioidomycosis : report of a case.**—*Ann. intern. Med.*, xxviii, 3, pp. 651–661, 2 figs., 1948.

A case of progressive coccidioidomycosis (*Coccidioides immitis*) in a 24-year-old male patient at the Pasadena [California] Regional Hospital is described. A generalized coccidioidal peritonitis revealed by the post-mortem examination was attributed to the intraperitoneal release of infective material from necrotic liquefying nodules on the surface of the spleen and liver. The complement-fixing antibodies never gave a positive reaction in tests with dilutions exceeding 1:8, and the patient failed to respond to intradermal injections of coccidioidin (1:100) in the closing stages of the disease. The administration of a total of 6,260,000 units of penicillin proved ineffectual. Many analogies can be drawn between coccidioidomycosis and tuberculosis. A brief discussion of certain aspects of the disease is presented.

1143. NABARRO (J. D. N.). **Primary pulmonary coccidioidomycosis. Case of laboratory infection in England.**—*Lancet*, ccliv, 6513, pp. 982–984, 2 figs., 1948.

A case of primary pulmonary coccidioidomycosis (*Coccidioides immitis*) with mild symptoms in a 32-year-old female laboratory worker in England is described, infection having probably been acquired during manipulation of extracts of the fungus for skin-testing. The clinical and pathological features of the disease are reviewed and reference is made to several other reports of laboratory infection in the relevant literature.

1144. SMITH (C. E.), WHITING (E. G.), BAKER (E. E.), ROSENBERGER (H. G.), BEARD (R. R.), & SAITO (MARGARET T.). **The use of coccidioidin.**—*Amer. Rev. Tuberc.*, lvii, 4, pp. 330–360, 1 fig., 1 graph, 1948. [Spanish summary.]

The preparation and use of coccidioidin is described under the following headings: the fungus (*Coccidioides immitis*) used as inoculum; grinding and methods of filtration; heat stability of coccidioidin and concentration over water bath; potency and specificity; tuberculin type of sensitivity; development of sensitivity to coccidioidin; relation to erythema nodosum; duration of coccidioidin sensitivity; the coccidioidin test in disseminated coccidioidal infection; controls and syringes; sensitization by coccidioidin; dilution of coccidioidin; stability of coccidioidin; contamination of coccidioidin; and errors in technique.

1145. SMITH (D. T.) & HARRELL (E. R.). **Fatal coccidioidomycosis. A case of a laboratory infection.**—*Amer. Rev. Tuberc.*, lvii, 4, pp. 368–374, 4 figs., 1948. [Spanish summary.]

The arthrospores of the cultural form of *Coccidioides immitis* are stated to be highly infectious. At the Duke University School of Medicine, Durham, North Carolina, a small epidemic involving negro laboratory workers followed the accidental contamination of the outside of some flasks with liquid cultures of the fungus. It resulted in five subclinical infections and one progressive, fatal case of coccidioidomycosis which is reported in detail.

1146. SMITH (C. E.), BEARD (R. R.), & SAITO (MARGARET T.). **Pathogenesis of coccidioidomycosis with special reference to pulmonary cavitation.**—*Ann. intern. Med.*, xxix, 4, pp. 623–655, 5 figs., 1948.

Coccidioidal pulmonary cavitation may develop in an area of pneumonitis or in a residual lesion some months after the primary infection by *Coccidioides immitis*. Its incidence in military hospitals in the United States has ranged from 2 to 8 per cent. The etiological significance of the fungus in 274 pulmonary cavities was revealed by its recovery in 40 per cent., positive serology in 49 per cent., and positive coccidioidin and negative tuberculin in 11 per cent. Joint tuberculous and coccidioidal infections occurred in seven of the group, the former being progressive only in one case and the latter in none. The relatively benign nature of these cavities is indicated by their incidental discovery in three-fifths of the military patients; among civilians nearly three-fifths of the initial roentgenograms were taken because of haemoptysis, which was, however, rarely of a serious nature. Ninety per cent. of the cavities were single and 70 per cent. were located in the upper chest.

A coccidioidin skin test is the first step towards diagnosis; a strength exceeding 1:100 may be required in some 10 per cent. of the cases, while a few may be negative even to 1:10. Where serology is negative and the tuberculin test positive, the diagnosis can be established only by the recovery of the fungus from the sputum or gastric contents. Various methods of therapy are discussed.

1147. NEGRONI (P.) & RADICE (J. C.). **La formación de endosporos en el *Coccidioides immitis* observado con la luz de Wood. Su posición sistemática.** [Endospore formation in *Coccidioides immitis* detected under Wood's light. Its systematic position.]—*Rev. argent. Dermatosis*, xxxi, 3–4, pp. 573–578, 3 figs., 1947. [French summary.]

The examination under Wood's light of fluorochrome-treated sections of the organs of guinea-pigs inoculated with various isolates of *Coccidioides immitis* confirmed the observations of Fonseca, Almeida, Redaelli, and Ciferri, and Baker and Mrak as regards the mechanism of endospore formation by successive cleavage of the cellular content of the adult parasite. With a certain frequency, varying with individual isolates, this process takes place in a peripheral layer of the protoplasm. Finally the endospores expand and become enveloped in a coarse, refringent membrane, leaving no residual protoplasm or epiplasm. A single nucleus is present in the endospore. The conjugation of the endospores or young free cells was also observed.

The authors agree with Almeida that Fonseca's genus *Pseudococcidioides* (1928) should be relegated to synonymy, and propose the classification of *C. immitis* with the Phycomyces on the basis of its mode of reproduction.

1148. SNYDER (B. L.) & ROGERS (G. K.). **Disseminated coccidioidal granuloma (case report).**—*Arizona Med.*, v, 2, pp. 33–37, 1948. [*T.D.B.*, xlv, 1031.]

A case is described of the disseminated form of *Coccidioides immitis* in a young adult white male resident in Arizona for three years. The patient complained of fatigue, cough, fevers, muscular aches, and loss of weight, and examination revealed an upper lobe pulmonary lesion. Three months later cutaneous coccidioidomycosis had developed over the face and chest; the patient grew progressively worse, and death occurred within a year after the first hospital attendance. Cerebrospinal lesions were confined to the meninges, where fungus spherules tended to be larger and more actively proliferating than elsewhere.

1149. PAGE (E. W.) & BOYERS (L. M.). **Coccidioidal pelvic inflammatory disease.**—*Amer. J. Obstetr.*, 1, 2, pp. 212–215, 2 figs., 1945.

A case is reported of disseminated coccidioidomycosis (*Coccidioides immitis*) involving primarily the uterus, tubes, and one ovary of a 33-year-old patient at the Alameda County Hospital, Oakland, California. Surgical removal of the diseased organs was followed by a complete cure. This is only the second record of infection of the female genital tract by *C. immitis*.

1150. RHODEN (A. E.). **Coccidioidal brain abscess.**—*Bull. Los Angeles neurol. Soc.*, xi, 1–2, pp. 80–85, 4 figs., 1946.

A case of brain abscess due to *Coccidioides [immitis]* in a 16-year-old boy is described from Kern County, California, apparently the first to be recorded in the literature. The abscess had almost replaced the tissues of the left cerebellar hemisphere and caused compression of the fourth ventricle, and terminal meningitis. The clinical course of the disease was insidious and asymptomatic up to the final stage. The patient had lived in the endemic area for about three years and suffered from severe diabetes mellitus.

1151. ROSENTHAL (S. R.) & ROUTIEN (J. B.). **Contagiousness of coccidioidomycosis : an experimental study.**—*Arch. intern. Med.*, lxxx, 3, pp. 343–357, 5 figs., 1947. [*B.A.*, xxii, 11695.]

This is an amplified, tabulated account of the writers' experimental study on the contagiousness of coccidioidomycosis (*Coccidioides immitis*), a preliminary note on which has already appeared [No. 924]. The spherules of the fungus remain viable under certain conditions and do not produce hyphae and chlamydospores in exudates from human sources for at least 110 days (experiments were still in progress at the time of writing). By instilling spherule-containing material of human or animal origin into the bronchi of guinea-pigs and propelling them by air pressure into the finer ramifications of the bronchioles and alveoli, the disease can be produced in 100 per cent. of the animals. The resultant single or multiple lesions, mostly localized in the upper part of the lungs, have a lymph-node component and simulate those of human infections. Thus the spherules or sporangia of *C. immitis* can be infective through the respiratory route from man or animals to animals.

1152. McLAUGHLIN (F. W.). **Coccidioidal infection.**—*Bull. U.S. Army med. Dep.*, viii, 2, pp. 124–127, 1948.

Tables are given showing the frequency of (1) symptoms and (2) signs in 20 out of over 750 cases of coccidioidomycosis (*Coccidioides immitis*) diagnosed at Camp Roberts, California (an endemic area for infection), since 1941. One case involving the pulmonary region is described in detail. The conclusions reached on the basis of the author's observations are as follows. A negative skin test does not exclude coccidioidomycosis, nor does a positive one alone confirm the diagnosis. Owing to the similarity of tuberculosis, pneumonia, and coccidioidomycosis, complement-fixation and precipitin tests will usually be necessary for a final diagnosis. The sedimentation rate is of value as a diagnostic and prognostic adjunct. No specific therapy has yet been found for the disease.

1153. FORBUS (W. D.) & BESTERBREUTJE (ANNIE M.). **Coccidioidomycosis : a study of 95 cases of the disseminated type with special reference to the pathogenesis of the disease.**—*Milit. Surg.*, xcix, 5, pp. 653–719, 37 figs. (4 col.), 1946.

The 95 cases of disseminated coccidioidomycosis (*Coccidioides immitis*) under review, of which 50 were fatal, occurred in the armed forces of the United

States between 1941 and 1946. The investigations herein reported in great detail yielded much valuable information, including the following. Coccidioidomycosis is primarily a pulmonary disease with negligible mortality, death being associated with an endogenous reinfection, i.e., the disseminated form. The pathogenic and pathologic-anatomic characteristics of coccidioidomycosis place it between the typical granulomatous diseases, represented by tuberculosis, and acute suppurative infections like the pyogenic. Clinically completely healed but residual pulmonary lesions contain vegetative organisms in all stages of development, which may serve as the source of disseminated infection months or even years after the pulmonary symptoms have disappeared. The ten most common sites of lesions resulting from dissemination of the fungus by the blood stream, in descending order of frequency, are lungs, lymph nodes, spleen, skin and subcutaneous tissues, liver, kidney, bones, meninges, adrenal, and myocardium. Absolute diagnosis of coccidioidomycosis can almost invariably be made by microscopic examination of the organisms in the tissues, exudate, or body fluids, cultures or animal inoculations being seldom required. A comprehensive bibliography of the pertinent literature from 1892 to 1945 is appended.

1154. KURZ (E. R. H.) & LOUD (N. W.). **Coccidioidomycosis in New England.**—*New Engl. J. Med.*, ccxxvii, 17, pp. 610–616, 5 figs., 1947.

Reports are given on four cases of coccidioidomycosis (*Coccidioides immitis*) in ex-servicemen who had returned to their native environments in the area of New Hampshire and Vermont. One of these cases presented a severe granulomatous condition of the skin which remained long unrecognized, was extremely disfiguring, and proved highly intractable to therapy with sulphonamides, penicillin, streptomycin, and iodides, but ultimately responded to radiation. All the patients showed lung involvement, but no difficulty should be experienced in differentiating the symptoms of fungal infection from those of tuberculosis. In coccidioidomycosis the ring shadows are fairly definite and there is no reaction round them. 'Flaky' or hazy shadows were absent from the surrounding lung parenchyma, and in the present limited series the lesions were solitary. Metastatic cancer and bronchiogenic carcinoma may also be simulated, but the multiple lesions in the former and the absence of atelectatic areas in coccidioidomycosis should serve as diagnostic criteria. Positive skin and serological tests help to substantiate the radiographic findings. The urgent need for frequent X-ray examinations of persons from areas endemic for coccidioidomycosis is emphasized.

1155. SMITH (H.). **Coccidioidomycosis in animals with report of a new case in a Dog.**—*Arch. Path.*, xxiv, 1, pp. 223–230, 2 pl., 1948.

Nearly 100 cases of coccidioidal granuloma (*Coccidioides immitis*) have been recorded in cattle, one in a sheep, two in captive wild animals, and two in dogs. A third case in a dog (seven-year-old female fox terrier) is described from Iowa, infection having possibly been contracted in Texas.

1156. PRCHAL (C. J.). **Coccidioidomycosis of Cattle in Arizona.**—*J. Amer. vet. med. Ass.*, cxii, 855, pp. 461–463, 1948.

On post-mortem examination, coccidioidomycosis (*Coccidioides immitis*) was found in 503 out of 38,175 cattle slaughtered at Phoenix, Arizona, from October, 1946 to July, 1947, while eight lesions were also detected in one lot of 55 calves in May, 1947. The disease most commonly involves the thoracic lymph nodes of 2½- to 3-year-old Hereford steers. Eleven slight lesions were

found in the lungs of cattle and one in a calf; the latter is stated to be a new record.

1157. RECTOR (L. E.) & RECTOR (ELEANOR J.). **Coccidioidomycosis in the salivary gland of the Townsend Mole.**—*Amer. J. trop. Med.*, xxviii, 5, pp. 707-709, 2 figs., 1948.

The detection of *Coccidioidomyces immitis* in the salivary glands of the Townsend mole (*Scapanus townsendii*) near Seattle, Washington (cf. *Amer. J. trop. Med.*, x, pp. 629-636, 1934), adds another rodent to the list of known hosts of the fungus. This discovery is considered to lend further support to Emmons's contention that rodents are the natural reservoir of the pathogen, and that the soil, by harbouring the mycelial and sporulation phases of its life-cycle, merely acts as an agent of dissemination.

1158. KERVAN (P.) & ARETAS (R.). **Deux cas d'histoplasmosse observés au Soudan français.** [Two cases of histoplasmosis observed in the French Sudan.]—*Bull. Soc. Path. exot.*, xl, 7-8, pp. 270-276, 1947.

The fungus concerned in two cases of histoplasmosis in natives of the French Sudan [Nos. 519, 520], the first records for [North] Africa, resembled *Histoplasma capsulatum* in all respects except for the dimensions of the parasitic elements *in vivo*, which measured 5 to 15 μ in diameter as against 1 to 4 μ reported by United States workers. One of the patients, a 26-year-old male, recovered from a submaxillary tumour following intensive iodide therapy and two injections of 1 c.c. lipiodol *in situ*, but the other, a 15-year-old-girl, succumbed to severe visceral involvement.

1159. PARÁ (M.). **Histoplasmosis in Brazil.**—*Amer. J. trop. Med.*, xxvi, 3, pp. 273-292, 16 figs., 1 map, 1946.

Five cases of histoplasmosis (*Histoplasma capsulatum*) are described from Brazil, all in children of ages ranging from 19 months to nine years, two boys and three girls. The diagnosis was based on the histopathological examination of viscerotomy liver specimens (numbering 169,808 in all) collected between 1939 and 1944. The essential lesions included marked reticulo-endothelial hyperplasia, granuloma formation, focal necrosis, and micro-abscesses. The causal organism was also isolated from the lung of a house dog that had been in close contact with one of the patients, this being the fourth reported case of canine histoplasmosis and, it is believed, the first to be linked directly with a human infection. The dog isolate, designated 'strain PCTA dog lung', made no growth at 37° C., but developed freely at 25° to 30° on blood-Sabouraud's agar, Czapek's media, dextrose broth, and liver infusion broth. Its morphological and cultural characters are briefly described pending the results of a more detailed comparative study.

1160. GROOVER (M. E.), CLEVE (E. A.), BORNSTEIN (S.), RICE (A. G.), GALLOWAY (A. G.), & MACALUSO (C. P.). **Sensitivity of skin to histoplasmin in differential diagnosis of pulmonary disease.**—*Arch. int. Med.*, lxxx, 4, pp. 496-513, 1 diag., 2 maps, 1947.

In a group of 1,220 patients, soldiers of the United States Army, with roentgen evidence of tuberculosis, at the Moore General Hospital, Swannanoa, North Carolina, 96.6 per cent. reacted positively to skin tests with tuberculin, 58.6 per cent. to histoplasmin (*Histoplasma capsulatum* antigen), and 31.1 per cent. to coccidioidin (*Coccidioides immitis* antigen). Both histoplasmosis and coccidioidomycosis are known to leave pulmonary pathema similar to that of tuberculosis. More exacting criteria, therefore, should be available for the

diagnosis of primary tuberculosis than those of roentgenologic studies and skin sensitivity to tuberculin.

1161. WELCH (S. H.) & BERREY (RUTH). **Histoplasmin sensitivity: results of studies of children in Alabama.**—*Amer. J. Dis. Child.*, lxxiv, 5, pp. 607–609, 1947.

Of 1,200 negro and 923 white children examined for histoplasmin (*Histoplasma capsulatum* antigen) and tuberculin sensitivity in Alabama, 15 per cent. of the former and 4.4 per cent. of the latter reacted positively to histoplasmin, the corresponding percentages for tuberculin being 19 and 8.34, respectively. The results of roentgenograms of the chest are also given.

1162. PRIOR (J. H.) & ALLEN (MARGARET F.). **Geographic distribution of histoplasmin and tuberculin reactors among Ohio State University freshmen and student nurses training in Columbus, Ohio hospitals.**—*Publ. Hlth Rep., Wash.*, lxii, 45, pp. 1608–1617, 2 maps, 1947.

The results of a study of the histoplasmin (a filtrate of broth cultures of *Histoplasma capsulatum*) and tuberculin reactions in 5,087 University freshmen and student nurses, all lifetime residents of some one county of Ohio, led to the following conclusions. The State presents a geographic pattern of distribution of histoplasmin reactors, the rate of reaction being low (16.8 per cent.) in the north-east, increasing to the south and west, and progressing to the highest level (75.8 per cent.) in the south-western corner. No comparable geographic distribution was observed in connexion with tuberculin reaction rates. There are more reactors to histoplasmin (5 per cent. higher average) among males than among females, a similar trend being apparent in the case of tuberculin (7 per cent. higher average among males). More reactors to histoplasmin (average 9.5 per cent. higher) were found among lifetime residents on farms (15 per cent. of the total number tested) than in the remainder of the group, the position being reversed in respect of tuberculin.

1163. FURCOLOW (M. L.), MANTZ (H. L.), & LEWIS (I.). **The roentgenographic appearance of persistent pulmonary infiltrates associated with sensitivity to histoplasmin.**—*Publ. Hlth Rep., Wash.*, lxii, 49, pp. 1711–1718, 16 pl., 1947.

Some two-thirds (49) out of 72 cases of persistent pulmonary infiltration in a roentgenographic study of Kansas schoolchildren, of ages ranging from four to 18, sensitive to histoplasmin (*Histoplasma capsulatum* extract) but not to tuberculin, consisted of nodular, sharply circumscribed foci, in 17 the infiltrates were pneumonic, in three disseminated, and in three associated with hilar and mediastinal adenopathy. The lesions tend to calcify slowly, and many infiltrations persisted without complete calcification during the two years covered by the observations. In regions where histoplasmin sensitivity is widespread, pulmonary infiltrations as well as calcifications are frequently non-tuberculous, and at present can be distinguished from tuberculosis only by means of skin tests.

1164. BUNNELL (I. L.) & FURCOLOW (M. L.). **A report on ten proved cases of histoplasmosis.**—*Publ. Hlth Rep., Wash.*, lxiii, 10, pp. 299–316, 1948.

Ten cases of histoplasmosis (*Histoplasma capsulatum*) in residents of Kansas City are described. The group comprised seven males and three females of ages ranging from five months to 64 years. Nine were proved by cultural isolation of the fungus and one by the typical pathological pictures. Two of the five surviving patients have apparently made a complete recovery, a third will probably do the same, while the prognosis of the fourth and fifth is doubt-

ful. Seven of the ten patients developed sensitivity to histoplasmin, and complement-fixing antibodies were demonstrated in their sera. Only one showed neither histoplasmin sensitivity nor complement-fixing antibodies. Sensitivity to both blastomycin [*Blastomyces dermatitidis* extract] and histoplasmin was observed in the skin tests of one person, but serial antigen dilutions showed the heterologous reaction to be weaker than the homologous. Complement-fixing antibodies for blastomycin as well as for histoplasmin were detected in the sera of seven patients, but in all cases the antibodies against histoplasmin were present in larger numbers. X-ray examination revealed pulmonary infiltration in eight cases and probably in another; two of the eight presented the roentgenographic picture of miliary lung lesions. The gastric contents of four persons suffering from histoplasmosis yielded *H. capsulatum*.

1165. SALVIN (S. B.). **Complement fixation studies in experimental histoplasmosis.**—*Proc. Soc. exp. Biol., N.Y.*, lxvi, 2, pp. 342–345, 2 graphs, 1947.

An antigen from the yeast-like phase of *Histoplasma capsulatum* fixed complement in the presence of antisera from experimentally infected rabbits from the second to the 23rd weeks after inoculation. In contrast to histoplasmin, this antigen did not react with the antisera of *Coccidioides immitis*, *Blastomyces dermatitidis*, and *Candida albicans*.

1166. TENNENBERG (D. J.) & HOWELL (A.). **A complement fixation test for histoplasmosis. I. Technic and preliminary results on human sera.**—*Publ. Hlth Rep., Wash.*, lxiii, 6, pp. 163–168, 1948.

A complement fixation test for histoplasmosis (*Histoplasma capsulatum*) is described. From preliminary results lot H-15 histoplasmin (undiluted histoplasmin antigen) appears to be satisfactory for the detection of complement-fixing antibodies in guinea-pigs experimentally inoculated with the fungus. Similarly, lot B-7 blastomycin proved to be a suitable antigen for the demonstration of complement-fixing antibodies in guinea-pigs inoculated with *Blastomyces dermatitidis*. Complement-fixing antibodies may be present in the serum of guinea-pigs inoculated with either fungus, but fixation is stronger with the homologous than with the heterologous antigen, and cross-reactions can be eliminated by serial serum dilutions. Normal guinea-pig sera do not give positive complement fixation with either of the antigens under investigation.

1167. FURCOLOW (M. L.), BUNNELL (I. L.), & TENNENBERG (D. J.). **A complement fixation test for histoplasmosis. II. Preliminary results with human sera.**—*Publ. Hlth Rep., Wash.*, lxiii, 6, pp. 169–173, 1948. [*T.D.B.*, xlv, 694.]

This is a report on the results of complement fixation tests for histoplasmosis (*Histoplasma capsulatum*) on 300 human sera, using as an antigen histoplasmin, lot H-15 [see preceding entry]. Positive complement fixation occurred in 14 (4.7 per cent.) of the samples, all emanating from a group of 58 persons, comprising nine proved cases of histoplasmosis (six positive), 13 histoplasmin 'converters', i.e., subjects with recently acquired skin sensitivity to histoplasmin (two), 36 histoplasmin-positive, tuberculin-negative individuals with unhealed pulmonary lesions (six). Seven (12 per cent.) of these sera reacted doubtfully to the tests (two, one, and four, respectively, in the three foregoing groups). The remaining 242 ('control') sera yielded no positive results, but a doubtful response was elicited from 13 (5 per cent.), viz., seven from 91 tuberculous patients and six from 58 histoplasmin-reactors.

1168. WEED (L. A.) & PARKHILL (EDITH M.). **The diagnosis of histoplasmosis in ulcerative disease of the mouth and pharynx.**—*Amer. J. clin. Path.*, xviii, 2, pp. 130–140, 4 figs., 1948.

Four cases of histoplasmosis (*Histoplasma capsulatum*) of the oral cavity, all in male patients (77, 37, 48, and 23 years old) at the Mayo Clinic, Rochester, Minnesota, are presented to illustrate the difficulties and uncertainties of histologic diagnosis and emphasize the advisability of supplementing biopsy with mycological study. The clinical manifestations of the disease are very variable and may appear as ulcerated or indurated lesions simulating those of tuberculosis, malignant disease, and leishmaniasis. On biopsy the organisms may be present in the tissue in sufficient numbers to justify a histological diagnosis of histoplasmosis, or they may be so few as to preclude etiological evaluation on this basis. *H. capsulatum* may easily be isolated from material removed for biopsy by inoculating the emulsified tissue on to blood agar containing 50 units each of penicillin and streptomycin per c.c. of medium to inhibit bacterial growth. This substratum is equally suitable for other pathogenic fungi, e.g., *Blastomyces dermatitidis*, *Coccidioides immitis*, and *Cryptococcus hominis* [*C. neoformans*].

1169. MILLER (H. E.), KEDDIE (FRANCES M.), JOHNSTONE (H. G.), & BOSTICK (W. L.). **Histoplasmosis: cutaneous and mucomembraneous lesions, mycologic and pathologic observations.**—*Arch. Derm. Syph.*, N.Y., lvi, 6, pp. 715–739, 3 figs., 1947.

A study of the literature relating to 88 cases of histoplasmosis (*Histoplasma capsulatum*) revealed the presence of cutaneous or mucomembraneous lesions in 45. The fungus was detected in a high percentage of the cutaneous lesions. An additional case of the disease is reported in a 37-year-old farm labourer at the Clinic of the University of California School of Medicine, the causal organism having been isolated five months before death from the walls of an ulcer on the tongue. The cervical and axillary lymph nodes were also involved. The patient was further suffering from Hodgkin's disease and disseminated miliary tuberculosis (the probable cause of death). A diagnosis of histoplasmosis cannot be made on clinical symptoms alone, isolation of the fungus being essential. All attempts at therapy by sulphadiazine, stilbamine glucoside ('neostam'), penicillin, and X-rays proved unavailing.

1170. SONTAG (L. W.) & ALLEN (J. E.). **Lung calcifications and histoplasmin-tuberculin skin sensitivity.**—*J. Pediat.*, xxx, 6, pp. 657–667, 1947. [*B.A.*, xxi, No. 25465.]

The authors found that coccidioidomycosis [*Coccidioides immitis*] could produce pulmonary lesions which calcify and give X-ray findings identical with those of primary pulmonary tuberculosis. Of 170 essentially 'normal' children in south-western Ohio, 15.3 per cent. reacted positively to tuberculin skin tests, 44.7 per cent. to histoplasmin 1 in 1,000, and 60.6 per cent. presented demonstrable pulmonary calcifications. Incidence of sensitivity was greater to histoplasmin than to tuberculin, showing that many more calcifications occur in tuberculin non-reactors than in tuberculin reactors.

1171. RAWSON (A. J.). **Acid-fast property of *Histoplasma capsulatum*.**—*Amer. J. clin. Path.*, xviii, 1, p. 97, 1948.

A modified Ziehl-Neelsen stain, substituting 3 per cent. aqueous hydrochloric acid for acid alcohol for the decolorization of the sections, may be used to advantage in the search for *H. capsulatum* in tissues.

1172. HOWELL (A.). **The efficiency of methods for the isolation of *Histoplasma capsulatum*.**—*Publ. Hlth Rep., Wash.*, lxiii, 6, pp. 173–178, 2 pl., 1948.

Positive cultures were obtained from the spleens of 46 guinea-pigs inoculated with *Histoplasma capsulatum*. Of the two media used for the isolation of the fungus, namely, brain-heart infusion blood agar and potato dextrose agar, incubated both at room temperature and 37° C., the former substratum and the lower temperature proved more efficient. The colonies developing under these conditions are moist, heaped, and of cerebriform aspect, and a pink to reddish-brown pigmentation may be present. They must be transferred to potato dextrose agar or some similar medium and incubated at room temperature for the production of the characteristic tuberculate chlamydospores which permit of positive identification.

1173. FURCOLOW (M. L.). **The histoplasmin skin test.**—*Amer. J. clin. Path.*, xviii, 2, pp. 171–172, 1948.

Recent reports on the application of the histoplasmin sensitivity test in cases of histoplasmosis are briefly summarized. It is concluded that histoplasmin sensitivity is probably an index of present or past infection by *Histoplasma capsulatum*. The test should be repeated in non-reacting suspected cases of serious illness or fever.

1174. FURCOLOW (M. L.), EMGE (MABEL E.), & BUNNELL (I. L.). **Depression of tuberculin and histoplasmin sensitivity associated with critical illness.**—*Publ. Hlth Rep., Wash.*, lxiii, 40, pp. 1290–1298, 2 graphs, 1948.

Critical illness exerts a depressing effect on skin sensitivity to tuberculin and to histoplasmin (*Histoplasma capsulatum* antigen). This effect becomes increasingly marked with advancing age. The lowest rate of skin sensitivity is exhibited by persons in the final stages of a fatal illness. Of 38 surviving patients at the Kansas City General Hospital who were insensitive to histoplasmin while critically ill, 15 (39.4 per cent.) reacted positively to skin tests as their condition improved. The evidence suggests that the depression is non-specific in respect of the antigens used and the cause of illness. From the results herein presented the value of any type of skin tests on persons critically ill from any cause would appear to be questionable.

1175. BUNNELL (I.) & FURCOLOW (M. L.). **Variations in histoplasmin sensitivity in certain cities in eastern Kansas.**—*Publ. Hlth Rep., Wash.*, lxiii, 40, pp. 1298–1305, 1 diag., 1 graph., 1948.

Studies of histoplasmin (*Histoplasma capsulatum* antigen) sensitivity in five cities in the eastern one-third of Kansas revealed a rapid decrease in the frequency of positive reactors to the west of Kansas City, Missouri. Calculation of the theoretical annual conversion rates or yearly rates of increase in new positive reactors facilitates comparison of histoplasmin sensitivity in these cities. A single annual conversion rate appear to be operating at all ages up to and inclusive of 18 in cities such as Wichita, Topeka, and probably Lawrence, where histoplasmin sensitivity is low. Where the rates are high, two seem to be operating, those for children over seven being at least twice the rates for children under seven. The more accurate determination of the extent of the area of high histoplasmin sensitivity and the significance of the sharp increase in reactor rates occurring about the age of seven in such areas require further study.

1176. JOHNSON (D. W.) & DERRICK (E. H.). **Histoplasmosis: report of an Australian case.**—*Med. J. Aust.*, xxxv (ii), 18, pp. 518–519, 2 figs., 1948.

Following a summary of the available information on the geographical distribution, mycology, clinical features, diagnosis, prognosis, and treatment of histoplasmosis (*Histoplasma capsulatum*), an account is given of the first case of the disease to be reported from Australia. Clinically the lesion on the chin of a 51-year-old farmer in New South Wales resembled a basal-cell carcinoma. The general morphology of the parasite, consisting of rounded or oval bodies, 3 to 4 μ in diameter, provided with a clear, colourless or pink-staining capsule, leaves no doubt as to its identity. The excision of the lesion in October, 1943, resulted in an apparent cure, the patient being still in good health in December, 1947.

1177. DUBLIN (W. B.), CULBERTSON (C. G.), & FRIEDMAN (H. P.). **Histoplasmosis.**—*Amer. Rev. Tuberc.*, lviii, 5, pp. 562–570, 11 figs., 1948. [Spanish summary.]

A case of generalized histoplasmosis, in which the diagnosis was made by biopsy of a cervical lymph node, is reported in a 21-year-old female patient at the Indianapolis General Hospital. The causal organism, *Histoplasma capsulatum*, grew from the buffy layer of the blood after 5 c.c. citrated blood had been allowed to stand for a fortnight at room temperature. Complement fixation tests with ground mycelium and filtrate antigens were negative, and in this connexion the significance of histoplasmin tests is discussed.

1178. PETERSON (J. C.) & CHRISTIE (A.). **Histoplasmosis and pulmonary calcifications.**—*Amer. Rev. Tuberc.*, lvii, 4, pp. 361–366, 1948. [Spanish summary.]

The apparently significant features of the relation of histoplasmin (antigen from *Histoplasma capsulatum*) sensitivity are reviewed and preliminary evidence is adduced for the existence of benign forms of histoplasmosis.

1179. KOLLER (F.) & KUHN (H.). **Ueber Histoplasmosen. Ein Beitrag zur ätiologischen Differenzierung von Lungenverkalkungen.** [On histoplasmosis. A contribution to the etiological differentiation of lung calcifications.]—*Schweiz. med. Wschr.*, lxxviii, 44, pp. 1077–1080, 1 graph, 1948.

A discussion of the nature and significance of histoplasmosis (*Histoplasma capsulatum*) is followed by a report of experimental injections with histoplasmin on 180 patients at the Zürich University Clinic with calcification of the lungs or hili (established by X-ray photography). Only in two cases, both long resident out of Europe, were the results positive. One of these persons had worked for seven years in the central United States, where histoplasmosis is prevalent, and the other was born and brought up in Java (where nothing is known regarding the presence or absence of the disease) [but see Müller, *Geneesk. Tijdschr. Nederl. Ind.*, lxxii, pp. 889–895, 1932, for the first record of histoplasmosis in the Old World, from Java], and had only come to Switzerland three years earlier. The reactions of 555 recruits in an army medical service college at Basle were likewise uniformly negative, and it is considered unlikely that histoplasmosis occurs in Switzerland.

1180. CROSS (F. W.). **The effect of hydrogen-ion concentration on the yeast-like phase of *Histoplasma capsulatum* (Darling).**—*Publ. Hlth Rep., Wash.*, lxiii, 23, pp. 739–746, 2 graphs, 1948.

The effect of various hydrogen-ion concentrations on the yeast-like phase of *Histoplasma capsulatum* was studied in modified Sabouraud's and beef extract broths and brain-heart infusion broth (Difco). According to the

medium used, the optimum initial hydrogen-ion concentration for the growth of the yeast-like phase ranged from pH 7.2 to 7.6 with a five-day incubation period at 37° C. The brain-heart infusion broth was the best of the media tested for the development of the yeast-like phase of *H. capsulatum*, while the modified Sabouraud's broth proved unsatisfactory for the end in view. Except in the last-named substratum, the growth and conversion of the yeast-like phase decreased parallel with the decrease in the hydrogen-ion concentration above the optimum range determined, under which conditions conversion to and growth of the mycelial phase sets in.

1181. SALVIN (S. B.) & HOTTLE (G. A.). **Serologic studies on antigens from *Histoplasma capsulatum* Darling.**—*J. Immunol.*, lx, 1, pp. 57–66, 3 graphs, 1948.

The presence of precipitins in the sera of 19 experimentally infected rabbits was determined with four antigens prepared from the mycelial and yeast-like phases of *Histoplasma capsulatum*, namely, the ground yeast phase and mycelial filtrates and the yeast phase and mycelial broth filtrates. Positive titres appeared about 13 days after infection, reached their peaks a week later, and finally disappeared some ten weeks after infection.

The binding capacity of seven antigens was compared by precipitative and complement-fixation techniques, using sera from animals inoculated with *H. capsulatum*. In both series of tests with sera from hyperimmune rabbits the mycelial broth filtrate displayed the maximum reactivity. However, in complement-fixation tests with sera from chronically infected animals only the three particular antigens were active. Cross-absorption tests showed the seven antigens to be divisible into two groups, both occurring within or on the cell, but only one in the culture medium, and ground-cell filtrates. The antigens elaborated by the mycelial and yeast-like phases were similar.

1182. PATES (ANNE L.). **Precipitin reactions in experimental histoplasmosis and blastomycosis.**—*Science*, cviii, 2806, pp. 383–385, 1948.

The results of precipitin tests performed on the sera of rabbits inoculated with *Histoplasma capsulatum* or *Blastomyces dermatitidis* at the University of Michigan indicate that the reactions thus obtained may be of value as an aid in the diagnosis of histoplasmosis and blastomycosis. Fractions derived from the broth filtrate of *H. capsulatum* gave more promise of specificity in relation to infections by the fungus than the filtrate itself.

A more detailed account of these studies is in preparation.

1183. SASLAW (S.) & CAMPBELL (CHARLOTTE C.). **The use of yeast phase antigens in a complement fixation test for histoplasmosis. I. Preliminary results with Rabbit sera.**—*J. Lab. clin. Med.*, xxxviii, 7, pp. 811–818, 1948.

A method of using yeast phase antigens of *Histoplasma capsulatum* in complement fixation tests with immune rabbit sera is described. An immunological relationship between *H. capsulatum* and *Blastomyces dermatitidis* was demonstrated. The potential value of employing yeast phase antigens in complement fixation tests for the diagnosis of past or present histoplasmosis infections is open to investigation.

1184. CAMPBELL (CHARLOTTE C.) & SASLAW (S.). **The use of yeast phase antigens in a complement fixation test for histoplasmosis. II. Results with ground antigens.**—*J. Lab. clin. Med.*, xxxiii, 10, pp. 1207–1211, 1948.

The complement fixation experiments herein reported were carried out with the assistance of Shirley A. Kibbs, using ground antigens from the yeast phase of *Histoplasma capsulatum* [see preceding entry] and *Blastomyces*

dermatitidis the preparation of which is described. Antigens obtained in this manner are as specific as those made from whole organisms; moreover, they give clear-cut end points and do not develop anti-complementary activity during storage at 3° to 6° C. The immunological relationship already noted between the two fungi was further confirmed by the present studies. The use of antigens of both *H. capsulatum* and *B. dermatitidis* in the evaluation of complement-fixing antibody responses to the former is recommended.

1185. CROSS (F. W.) & HOWELL (A.). **Studies of fungus antigens. II. Preliminary report on the isolation of an immunologically active polysaccharide from histoplasmin.**—*Publ. Hlth Rep., Wash.*, lxiii, 6, pp. 179–183, 1948.

A polysaccharide fraction shown to be free from protein by a variety of qualitative tests was isolated from lot H-17 of histoplasmin. This antigen has been tested on guinea-pigs inoculated with *Histoplasma capsulatum* and *Blastomyces dermatitidis*, using histoplasmin and blastomycin, respectively, as controls. It was demonstrated that the polysaccharide fraction of histoplasmin will give reactions in guinea-pigs inoculated with either organism, the number of positive responses depending on the dosage employed (13 out of 27 or 48.1 per cent. at 1 mg. and 7 out of 27 or 25.9 per cent. at 0.1 mg.). It is suggested that the active principle of histoplasmin is, partially at least, polysaccharide in nature.

1186. HOWELL (A.). **Studies of fungus antigens. III.**—*Publ. Hlth Rep., Wash.*, lxiii, 19, pp. 595–601, 1948.

The effects of simultaneous and repeated intradermal injections of 0.1 ml. of various dilutions of histoplasmin, blastomycin, an autoclaved filtrate of *Candida albicans*, heat-killed suspensions of the yeast phase of *Histoplasma capsulatum* and *Blastomyces dermatitidis*, and of a 1 in 100 dilution of a heat-killed suspension of *C. albicans* on normal guinea-pigs were investigated. It was shown that the antigens, used in sufficient concentrations, were capable of sensitizing the animals.

1187. FRIESS & DELVOYE. **À propos d'un aspect chirurgical d'une mycose rare ; histoplasmosse.** [On a surgical aspect of a rare mycosis: histoplasmosis.]—*Cah. méd. Union franç.*, Algiers, ii, 11, pp. 419–425, 8 figs., 1947. [*T.D.B.*, xlv, 466.]

The authors describe a fatal case of histoplasmosis in a native of Senegal. The upper cervical vertebrae were extensively damaged and a resulting cold abscess pointing in the posterior triangle of the neck led to a diagnosis of Potts's caries of the cervical spine. Gummatous lesions showing the large, parasitic form of *Histoplasma capsulatum* up to 12 μ in diameter occurred in the frontal and maxillary bones, femur, tibia, and bones of the forearm. *H. capsulatum* was obtained from the lesions before and after death. Histological examination of the skin showed hyperacanthosis of the epidermis with giant-cell granulomata rich in *Histoplasma* in the cutis. There was no apparent involvement of the lymph nodes or lungs, and only minor involvement of liver and spleen.

1188. DOWDING (ELEANOR S.). **The spores of *Histoplasma*.**—*Canad. J. Res.*, Sect. E, xxvi, 5, pp. 265–273, 4 pl., 2 figs., 1948.

A study of the spores of a strain of *Histoplasma* resembling *H. capsulatum* in their saprophytic mould stage and in their transition to the parasitic yeast phase showed that the mould stage is distinguished from that of related pathogenic fungi by the presence of tuberculate spores. The tuberculations are extensions of the spore contents through the wall openings. The whole or the

tip of a tuberculation may become detached and act as a spore. The yeast-like pathogenic phase originates from the hyphae, the small spores (conidia), or the tuberculations of the large spores (chlamydospores). *Histoplasma* can be recovered in culture from the lungs of white mice that have inhaled the spores.

1189. SALVIN (S. B.) & HOTTLE (G. A.). **Factors influencing histoplasmin formation.**—*J. Bact.*, lvi, 5, pp. 541-546, 1 graph, 1948.

A complement-fixation test was used to evaluate the influence of environmental and nutritional factors on histoplasmin formation by the mycelium of *Histoplasma capsulatum*. A maximum yield of the antigen in a glucose-asparagine medium was obtained after eight to ten weeks' growth at room-temperature. Its appearance was accompanied by a rise in alkalinity to pH 8 to 8.5, a drop in reducing sugars to zero, and a 25 per cent. decrease in total nitrogen. Optimal conditions for histoplasmin formation comprised a medium with an initial pH of 7 to 8, a surface to volume ratio near unity, and a growth temperature of 25°. Glucose-containing media provided satisfactory yields of histoplasmin, but far superior sources of carbohydrate were cellobiose, dextrin, starch, or glycogen.

1190. DAILEY (M. E.). **Histoplasmosis.**—*Amer. J. digest. Dis.*, xiv, 11, pp. 363-364, 1947.

Twelve contributions to the literature on various aspects of histoplasmosis (*Histoplasma capsulatum*) are briefly discussed.

1191. HOWELL (A.). **Isolation of pathogenic fungi from experimentally inoculated Guinea Pigs.**—*Publ. Hlth Rep., Wash.*, lxiii, 19, pp. 602-616, 1948.

A study was conducted on the susceptibility of guinea-pigs to intraperitoneal inoculations with the yeast phase of *Histoplasma capsulatum*, *Blastomyces dermatitidis*, and *Candida albicans*. With the dosages and strains of these fungi employed it was shown that only three out of 80 animals inoculated in this way with large doses of the yeast phase of *H. capsulatum*, and 17 out of 82 similarly treated with *B. dermatitidis* contracted a generalized infection, while the results of the tests with *C. albicans* were entirely negative. Relatively small doses of these organisms were found to be as effective as larger ones in the production of skin sensitization in guinea-pigs. Both *H. capsulatum* and *B. dermatitidis* were readily isolated from the spleens of apparently healthy animals inoculated with variable doses of these fungi nine to ten months earlier, but *C. albicans* could not be recovered from guinea-pigs two to three months after injection.

1192. RAWSON (A. J.), COLLINS (L. H.), & GRANT (J. L.). **Histoplasmosis and torulosis as causes of adrenal insufficiency.**—*Amer. J. med. Sci.*, ccxv, 4, pp. 365-371, 5 figs., 1948.

This is a review and discussion of two cases of adrenal involvement, one by *Histoplasma capsulatum* and the other by *Cryptococcus neoformans*, both in female patients (62 and 41 years old) in Philadelphia hospitals. This is believed to be the first record of adrenal insufficiency due to torulosis, and the ninth in which histoplasmosis was responsible for the condition.

1193. HARMON (K. S.). **Histoplasmosis in Dogs. A report of two cases.**—*J. Amer. vet. med. Ass.*, cxiii, 856, pp. 60-62, 3 figs., 1948.

The two cases of histoplasmosis (*Histoplasma capsulatum*) in dogs herein reported from Missouri bring the total for the United States to twelve.

Particulars are given of the autopsy and microscopic findings which may prove helpful in the diagnosis of the disease.

1194. EMMONS (C. W.), BELL (J. A.), & OLSON (B. J.). **Naturally occurring histoplasmosis in *Mus musculus* and *Rattus norvegicus*.**—*Publ. Hlth Rep., Wash.*, lxii, 46, pp. 1642–1646, 1947. [*T.D.B.*, xlv, 207.]

Following their earlier report of histoplasmosis in a house mouse (*Mus musculus*) in Loudoun County, Virginia, the authors record the disease in ten wild rats (*Rattus norvegicus*) trapped on three farms. The infected animals displayed no macroscopic sign of the infection, the disease being detected only by cultivation of *Histoplasma capsulatum* from the tissues, mainly the liver and spleen. This is the first recorded discovery of naturally acquired histoplasmosis in wild rodents.

Other observations were the discovery of *Blastomyces lanuginosa* in one mouse and a species of *Cryptococcus* pathogenic to experimental animals isolated from 81 animals, chiefly rats and mice.

1195. EMMONS (C. W.) & ASHBURN (L. L.). **Histoplasmosis in wild Rats. Occurrence and histopathology.**—*Publ. Hlth Rep., Wash.*, lxiii, 44, pp. 1416–1422, 2 figs., 1948.

Typical strains of *Histoplasma capsulatum* have been isolated from 16 wild rats (*Rattus norvegicus*) and one mouse (*Mus musculus*) trapped in Loudoun County, Virginia. No association was observed between these rodent cases and those previously reported in humans in the same area [No. 950]. Microscopic examination of the lesions revealed small, epithelioid granulomata sparsely occupied by fungal elements, which also occurred in monocytes outside the lesions. The existence of the pathogen in such ubiquitous rodents as the rat and mouse may be significant in relation to the world-wide distribution of histoplasmosis in man. *H. capsulatum* having now been isolated from naturally infected wild rodents and, being pathogenic to a variety of animals under experimental conditions, it is recommended that *H. muris* should be reduced to synonymy.

1196. BASSET (A.), COLDEFY, & DE KOUROCH. **Trois cas parisiens de pied de Madura dûs à une mycose (famille des 'Aspergillacées').** [Three Parisian cases of Madura foot due to a mycosis (family of the Aspergillaceae).]—*Bull. Acad. nat. Méd.*, cxxxii, 1–2, pp. 41–44, 1948.

Three cases of Madura foot are reported from Montreuil (Seine) in brothers aged 26, 22, and 18, in whom the condition developed as a sequel to injuries to the feet sustained in 1932, 1940, and 1942, respectively. No organism could be cultured from scrapings in the first case, but the other two yielded a species belonging to the Aspergillaceae.

1197. DOSTROVSKY (A.) & SAGHER (F.). **Failure of sulphonamides and penicillin in maduromycosis.**—*Lancet*, ccliv, 6491, pp. 177–178, 2 figs., 1948. [*T.D.B.*, xlv, 465.]

The authors describe a case of maduromycosis in a native of Aden. Colonies resembling those of *Madurella americana* were obtained in culture. Therapy including sulphapyridine gave some improvement, but 3½ years later the bones of the foot were involved to a considerable extent. Sulphadiazine and X-rays had no effect, and penicillin injections were only successful in overcoming secondary infection; the mycetoma did not respond, and the foot was amputated.

1198. LEWIS (G. M.), HOPPER (MARY E.), CORMIA (F. E.), & POTELUNAS (M. D.). **Mycetoma-like chromoblastomycosis affecting the hand. Further findings and comparative morphologic studies.**—*J. invest. Derm.*, x, 3, pp. 155–168, 8 figs., 1948.

Further intensive studies on the fungus concerned in a case of subcutaneous, granulomatous lesions of the hand previously described as a mycetoma [Nos. 529, 530] led to the conclusion that the condition would be better classified as chromoblastomycosis and its agent as a species of *Fonsecaea* [*Phialophora*].

1199. BENHAM (RHODA W.) & GEORG (LUCILLE K.). ***Allescheria boydii*, causative agent in a case of meningitis.**—*J. invest. Derm.*, x, 3, pp. 99–110, 7 figs., 1948.

This report of a fatal case of meningitis in a middle-aged female patient at the Neurological Institute, New York, is believed to be the first caused by *Allescheria boydii*. The history of the fungus in relation to human disease is briefly reviewed. Studies on different media indicate that rich sources of organic nitrogen stimulate the production of asexual spores and inhibit that of the sexual. A low degree of pathogenicity was indicated by the results of animal inoculation experiments.

1200. NORRIS (R. F.), SHOREY (W. K.), & BONGIOVANNI (A. M.). **Lesions produced in chick-embryos by *Candida* (*Monilia*) *albicans*.**—*Arch. Path.*, xlv, 4, pp. 506–512, 2 figs., 1948.

The lesions induced by *Candida albicans* in the tissues of the chick embryo by intravenous inoculation in 11-day-old embryonated hens' eggs were similar to those developing in the chorioallantoic membrane. They further resembled those reported in man and animals experimentally infected by the fungus. If the embryo is not rapidly overwhelmed by the infection, it first develops focal areas of liquefaction necrosis, associated with haemorrhage and scanty granulocytic infiltration. The latter increases with the age of the lesions, and larger numbers of mononuclear phagocytes and multinucleated giant cells, accompanied by proliferating fibroblasts, surround the focal necroses.

1201. BROWN (T. G.). **Pulmonary mycosis.**—*Edinb. med. J.*, liv, 8, pp. 414–420, 1947.

In this paper, read at a meeting of the Medico-Chirurgical Society of Edinburgh on 4th December, 1946, the author reviews the history of pulmonary mycosis, with bibliographical references to some outstanding studies on the subject, and gives brief notes on eight selected cases from his practice in which the symptoms induced by *Candida albicans* closely simulated those of tuberculosis. The ensuing discussion is reported on pp. 421–422.

1202. ASPE (A.) & VALENZUELA (E.). **Blastomycosis pulmonar.** [Pulmonary blastomycosis.]—*Rev. méd. Chile*, lxxvi, 8, pp. 505–508, 4 figs., 1948.

Following a review of the previous records of blastomycosis in Chile, the authors describe a case (the second to date) of the pulmonary form of the disease in a 54-year-old male patient at the Hospital San Borja, Santiago. The causal organism was isolated from the sputum and found to be a *Monilia*, probably *M. [Candida] albicans*. A cure was effected by means of blood transfusions, calcium, vitamins, iron, liver extract, and potassium iodide (1 gm. daily).

1203. NEGRONI (P.) & DAGLIO (C. A. N.). **Sobre la flora micológica de los esputos y su interpretación.** [On the mycological flora of the sputa and its interpretation.]—*Prensa méd. argent.*, xxxv, 30, pp. 1450–1456, 1948. [French and English summaries.]

From a total of 225 samples, comprising 212 bronchial sputa, seven secretions of bronchial material, two biopsies from the mucous membrane, one secretion each of tracheal and pleural liquid, one of the gastric contents, and one biopsy of lung tissue, 134 fungus cultures (about 60 per cent.) were obtained. Some 38 per cent. of the samples contained yeast-like organisms, namely, *Candida* 71 (83.52 per cent.) and *Torulopsis* 14 (15.41 per cent.). The 41 identified strains of the former genus comprised *C. albicans* 26, *C. tropicalis* and *C. krusei* five each, *C. parapsilosis* two, and *C. lipolytica*, *C. guilliermondii*, and *C. zeylanoides* one each. Out of 35 patients harbouring *Candida* or *Torulopsis* who were subjected to complement fixation tests, nine (25.71 per cent.) reacted positively. In 37 cases the mycological examination was repeated on two or more samples of bronchial secretion with conflicting results in 21 (62.16 per cent.). Three specimens revealed the presence of *Actinomyces* and three of *Paracoccidioides brasiliensis*. In some cases *C. albicans* was associated with tubercular cancer or other bronchial mycoses.

1204. SEALE (E. R.) & CLARK (W. A.). **Treatment of intertriginous moniliasis.**—*Sth. med. J.*, xli, 10, pp. 926–929, 1948.

At Houston, Texas, the authors used Castellani's paint in the treatment of 50 cases of intertriginous moniliasis (*Candida albicans*) over a period of 18 months with excellent results. Details are given of six cases. The formula is prepared as follows. Saturated alcoholic solution of basic fuchsin (10 c.c.) and 5 per cent. aqueous carbolic solution (100 c.c.) are filtered and 1 gm. boric acid added. At the end of two hours 5 c.c. acetone is added to the solution and after a further two hours 10 gm. resorcinol. The fuchsin, which produces a deep red stain, may be omitted except for application to the interdigital spaces, where it is necessitated by the deep inflammatory reactions and erosive character of the lesions. [This paper, read at the 41st Annual Meeting of the Southern Medical Association, 24th to 26th November, 1947, was followed by a discussion (pp. 929–930).]

1205. LE COULANT (P.) & MARCHAND. **A propos d'une observation d'erythème fessier des nourissons due à *Candida albicans*.** [On the subject of an observation of erythema of the buttocks in infants due to *Candida albicans*.]—*J. Méd. Bordeaux*, cxxv, 5, pp. 208–210, 2 figs., 1948.

In connexion with recent observations at Bordeaux on erythema of the buttocks in infants caused by *Candida albicans*, the authors summarize the available information on the etiology, diagnosis, and therapy of the disorder.

1206. MORENO (G. R.), SOLARI (M. A.), & BACHMANN (A. E.). **'Candide' allergique de la face.** [Allergic 'candidid' of the face.]—*Ann. Derm. Syph., Paris*, Sér. 8, viii, 2, pp. 139–145, 1948.

On the basis of cases encountered in their practice in Buenos Aires, the writers describe a condition which they term 'facial candidid', due to *Candida albicans*, a common inhabitant of the intestinal tract and sometimes also of the skin or mouth. Treatment consists in the administration of increasing doses of an active extract of the pathogen.

1207. HART (L.). **Moniliasis in Turkeys and Fowls in New South Wales.**—*Aust. vet. J.*, xxiii, pp. 191–192, 1947.

In December, 1944, an outbreak of moniliasis occurred in turkeys in western New South Wales on a farm of 700 to 800 turkeys, of which 350 were eight weeks old and 150 up to eight weeks. Mortality occurred only in the eight-week-old poultry, of which 300 were lost. In June, 1945, eight-week-old chickens were examined from a flock in which only 200 were alive out of 4,000, and of eight birds examined three were severely affected with moniliasis. A third outbreak occurred in turkey poults one to five weeks old, 250 of 400 birds succumbing. Material from the crops in all three outbreaks gave *Monilia* [*Candida*] *albicans*, apparently the first record of this disease in turkeys and chickens in Australia. On the first farm replacement of drinking water by 1 in 2,000 copper sulphate solution was stated by the owner to have caused an immediate decline in mortality.

1208. GEORGE (B. S.) & PLUNKETT (O. A.). **Dissociation in *Candida albicans*.**—*J. invest. Derm.*, x, 5, pp. 327–342, 4 pl., 1948.

Out of ten cultures of *Candida albicans* maintained for three to four years on Sabouraud's glucose agar at the University of California, Los Angeles, six underwent dissociation in the rough to membranous direction. Five of the six dissociated strains changed from a smooth, moist to a rough, dry colony type, while the surface of the remaining one developed shallow, radial grooves as the culture aged. All the dissociating strains produced a copiously branched, 'bushy' mycelium, the branches arising at the septa and replacing the verticils of blastospores. Three strains presenting the most advanced degrees of dissociation formed rough and membranous colonies, and one of them not only produced an abundance of 'bushy' mycelium but an unusually large number of chlamydospores. Typical blastospore formation was suppressed in all three strains and in one no chlamydospores developed. The fermentative properties of the dissociated strains were unchanged. Since the fungus undergoes dissociation after protracted periods under laboratory conditions, the possibility must be recognized that cultures received from culture collections may no longer correspond with the original isolation.

1209. LENORMAND (Mme H.). **La capsule des levures. Morphologie et connaissances biochimiques actuelles.** [The yeast capsule. Morphology and contemporary biochemical information.]—*Ann. Parasit. hum. comp.*, xxiii, 1–2, pp. 55–106, 6 pl., 1948.

Using the staining method of Churchman and Emelianoff, the author successfully demonstrated the presence of the capsule in every genus and species of yeast and also found a number of new 'architectural' characters, which are described; all were present in *Torulopsis* [*Cryptococcus*] *neoformans*. Details are given of modifications undergone by the capsule during budding, and the paper concludes with a review of present-day knowledge of the biological and chemical properties of the capsule.

1210. MORQUER (R.) & NYSTÉRAKIS (F.). **Action de l'hétéroauxine sur le dimorphisme de *Candida albicans*.** [Action of heteroauxin on the dimorphism of *Candida albicans*.]—*C. R. Acad. Sci., Paris*, cccxvi, 11, pp. 950–951, 1948.

The addition to cultures of *Candida albicans* on dextrose or maltose media containing ammoniacal nitrogen of indole- β -acetic acid at an initial dosage of 20 mg. per l. has been found to favour the processes of filamentization and blastosporogenesis. Higher dosages (50 mg. and upwards) of the heteroauxin exert a progressively stronger inhibitory action, which becomes absolute at

500 mg. However, after the 18th day of culture, the organism adapts itself to increasing dosages, with an optimum for filamentization of 50 mg.

1211. MOREIRA (N. M.). **Diagnóstico micológico pelo método auxanográfico de Beijerinck.** [Mycological diagnosis by the auxanographic method of Beijerinck.]—*Biol. méd.*, viii, 2, pp. 53–61, 1945.

Particulars are given of the methods developed by Almeida and collaborators, Langeron and Guerra, and Beijerinck for the diagnosis of yeasts. Using the last-named worker's auxanographic technique at the Instituto Vital, Brazil, the author identified a fungus isolated from the sputum of a male patient suffering from pulmonary mycosis as *Candida albicans*.

1212. MA (ROBERTA) & FONTAINE (T. D.). **In vitro antibiotic activity of crystalline tomatine toward *Candida albicans*. Antagonistic effect of rutin and quercetin.**—*Arch. Biochem.*, N.Y., xvi, 3, pp. 399–402, 1948.

Crude tomatine (extracted from *Lycopersicon pimpinellifolium* leaves) does not inhibit the growth of *Candida albicans*, whereas crystalline tomatine is a very powerful inhibitor. It has been shown that rutin and quercetin, normal constituents of crude tomatine concentrates, are capable of neutralizing the inhibitory effect of crystalline tomatine on the fungus.

1213. EDMUNDS (M.) & BECK (REGENA). **Rhinosporidiosis of the conjunctiva—case report.**—*Virginia med. Mon.*, lxxv, 6, pp. 278–280, 2 figs., 1948.

This report of a case of rhinosporidiosis of the conjunctiva in a 12-year-old boy—the sixth for the United States and first for Virginia—is followed by a discussion of the preserved specimens, representing the entire life-cycle of *Rhinosporidium seeberi* in the human host, which were shown at the annual meeting of the Virginia Society of Ophthalmology and Otolaryngology on 10th May, 1947.

1214. HABIBI (M.). **Rhinosporidium seeberi en Iran.** [*Rhinosporidium seeberi* in Iran.]—*Ann. Parasit. hum. comp.*, xxii, 1–2, pp. 84–88, 3 figs., 1947.

Brief statistical details are given of cases of infection by *Rhinosporidium seeberi* causing polypti of the eyes and nose in Persia. The first three cases observed in Persia were reported in 1939, and in all 31 have so far been observed by the author.

1215. PÄTIÄLÄ (R.). **Sur la symbiose des dermatophytes et du *Staphylococcus aureus*.** [On the symbiosis of the dermatophytes and *Staphylococcus aureus*.]—*Ann. Parasit. hum. comp.*, xxii, 1–2, pp. 105–107, 1947.

The results of experiments described by the author indicate that *Sabouraudites lanosus* [*Microsporum canis*] and other dermatophytes are capable of preventing the development of *Staphylococcus aureus* and the two organisms cannot be said to be symbiotic.

1216. CARLIER (GWENDOLINE I. M.). **An all-British mycological culture medium. Preliminary note.**—*Brit. J. Derm. Syph.*, lx, 2, pp. 61–63, 1 pl., 1948.

Fairchild peptone, one of the constituents of the standard American medium of Hodges (*Arch. Derm. Syph.*, N.Y., xviii, p. 852, 1928) being no longer obtainable in England, it was necessary to obtain a British substitute satisfying the following requirements. It should (1) produce colonies recognizably true to the standards established by Sabouraud (1910) and accepted throughout the world, so that identification by macroscopic characters presents no ambiguity; (2) discourage the growth of contaminants, such as bacteria and

green moulds; and (3) stimulate reasonably rapid growth of the fungus. At the Skin Hospital, Birmingham, Oxoid peptone, supplied by Oxo, and used in the proportion of 10 gm. to 40 gm. glucose, 23 gm. agar, and 1 l. water, has given reliable results with *Microsporum audouini*, *M. felineum* [*M. canis*], *Trichophyton gypseum asteroides*, *T. g. granulosum*, *T. cerebriforme*, *T. pedis*, and *Monilia pinoyi* [*Candida tropicalis*].

1217. CIFERRI (R.) & REDAELLI (R.). **Mancata formazione di forme ascofore e conservazione di culture di funghi patogeni in substrati naturali.** [Unsuccessful attempts at the formation of the ascigerous stages and the preservation of cultures of pathogenic fungi in natural substrata.]—*Mycopathologia*, iv, 2, pp. 131–136, 1948. [English summary.]

Attempts to obtain pycnidial or ascigerous states of dermatophytes by growing the fungi for three years in darkness on natural media were unsuccessful. The majority of the fungi, however, remained alive on most of the media. Normal cultures showed no tendency to pleomorphism, while pleomorphic cultures gave indications of a return to normal morphology.

1218. DANBY (C. W. E.) & FORSEY (R.). **A cultural study of ringworm.**—*Canad. med. Ass. J.*, lvi, 6, pp. 640–642, 1947.

The incidence of different species of fungi in the etiology of various types of ringworm observed at two hospitals in Montreal, based on a series of 100 cases and the identification of 60 positive cultures, is reported. Associated with tinea pedis were *Trichophyton gypseum* and *T. purpureum* (20 and 8 cases, respectively); with tinea capitis, *Microsporum lanosum* [*M. canis*] and *M. audouini* (5 and 2); with tinea corporis (including the face), *T. gypseum* (2), *T. purpureum* (3), *M. canis* (3), *Epidermophyton inguinale* [*E. floccosum*] (3), *M. audouini* (1), *M. fulvum* [*M. gypseum*] (1), and *Malassezia furfur* (3) (not cultured); and with onychomycosis, *T. purpureum* and *Monilia* [*Candida*] *albicans* (3 and 1, respectively).

In the present series of ringworm cultures the incidence of scalp involvement was 13.3 per cent. as compared with 62 in 1925.

1219. ZIMERINOV (A. A.) & RAFALOVITCH (S. M.). **An attempt to investigate fungus cultures in the hanging drop.**—*Brit. J. Derm. Syph.*, lx, 7–8, pp. 238–243, 6 figs., 1948.

The authors describe their observations at the Ukrainian Institute of Dermatology, Charkov, on hanging drop cultures of hair infected by *Trichophyton violaceum*, *T. crateriforme*, *T. gypseum*, *Microsporum lanosum* [*M. canis*], and *Achorion schoenleini*. This simple and convenient method permits the development of the fungi to be followed microscopically during the stage of initial generation from native material, and frequently saves time in their identification, which may be of value from the epidemiological standpoint. On the basis of the septate spindles constituting its organs of reproduction, *T. crateriforme* should be referred to the clostero-aleurosporia group of *Trichophyton*.

1220. SERRI (F.). **Ricerche sul potere fungistatico e fungicida del sangue nelle dermatomicosi.** [Researches on the fungistatic and fungicidal power of the blood in dermatomycoses.]—*Mycopathologia*, iv, 2, pp. 139–161, 1948. [French, German, and English summaries.]

From his investigations the author concludes that in the blood serum of patients with inflammatory mycotic infections or favus [*Achorion schoenleini*] a fungistatic action is sometimes observable which is not connected with any

antibody but appears to be due to obscure causes. In the case of normal persons and those with fungal infections it does not appear to be possible to demonstrate any true power of inhibition by blood and fresh serum upon fungi corresponding to bactericidal ability.

1221. CATANEI (A.). **Sur les caractères de la flore parasitaire des teignes cutanées dans diverses régions de l'Algérie.** [On the characters of the parasitic flora of cutaneous ringworms in different parts of Algeria.]—*Arch. Inst. Pasteur Algér.*, xxv, 3-4, pp. 191-194, 1947.

The following species, in order of frequency, were responsible for the 31 cases of ringworm of the glabrous skin investigated in Algeria from 1928 to 1946: *Achorion schoenleini*, *Ctenomyces* [*Trichophyton*] *mentagrophytes*, *T. glabrum*, *T. violaceum*, *T. acuminatum* [*T. sabouraudi*], *T. rubrum*, *Microsporum canis*, *M.* [*A.*] *quinckeanum*, and *Epidermophyton floccosum*. In none of these subjects was the hair involved.

1222. SIGEL (H.). **Cutaneous diseases among Army personnel in Japan.**—*Arch. Derm. Syph., Chicago*, lvii, 1, pp. 128-131, 1948.

Of 983 patients examined at two military hospitals in Japan, one at Kyoto (5th December, 1945 to 18th February, 1946, 154 cases) and the other at Osaka (18th February to 5th June, 1946, 829), 213 (16·8 [21·6] per cent.) were found to be suffering from superficial fungous infections, including tinea versicolor [*Malassezia furfur*]. Comparative figures from the relevant literature for Virginia (*Arch. Derm. Syph., N. Y.*, xlix, p. 91, 1944), California (*ibid.*, lii, p. 21, 1945), and Italy (*ibid.*, lii, p. 335, 1945) were 14·1, 18·7, and 19·05 per cent., respectively. The paper comprises observations on the most prevalent dermatoses, unusual cases, and treatment.

1223. GIARDINI (A.) & SERI (F.). **Potere patogeno dei dermatomiceti sull'occhio. Studio clinico e sperimentale.** [Pathogenicity of the dermatomycetes to the eye. A clinical and experimental study.]—*Mycopathologia*, iv, 2, pp. 172-186, 1948. [English summary.]

Inoculations of rabbits in an allergic condition with suspensions of *Trichophyton gypseum asteroides* and *Microsporum lanosum* [*M. canis*] failed to demonstrate any pathogenicity to the conjunctiva and other parts of the ocular globe. From this and other evidence the authors conclude that all forms of conjunctivitis appearing during deep dermatomycoses are a reaction of the tissue (which has become allergic) to the already existing cutaneous localization of the fungus; this reaction is induced by the presence of Hyphomycetes or their toxins, by blood circulation, or by some external factor. Ophthalmic reaction to trichophytin in animals and human subjects after the development of sensitivity was only observed when it was introduced through the subconjunctival route.

1224. DA LUZ (J. B.) & NOGUEIRA (J. F. P.). **Estudo experimental do poder patogenico de uma estirpe de dermatofita produtora de tinhas humanas.** [An experimental study of the pathogenicity of a strain of dermatophyte producing human tinea.]—*An. Inst. Med. trop.*, iii, pp. 195-206, 1946. [French and English summaries. Received March, 1948.]

When 24 rabbits and seven guinea-pigs were inoculated through the intravenous, intracardiac, and intraperitoneal routes with a strain of *Ctenomyces radiolatus* [*Trichophyton radiolatum*] from guinea-pig, up to the fifth day after inoculation blood cultures were positive only in the case of three animals. Cultures from apparently normal spleens of five animals which died a natural

death gave only one positive result. Only in three cases were tinea lesions observed, which were positively confirmed. Four animals were reinoculated intraperitoneally with the same strain, with only one positive result. Of five animals which died after a long period (intraperitoneal reinoculation), one showed granulomatous lung lesions of the strange body type.

1225. BENHAM (RHODA W.). **Effect of nutrition on growth and morphology of the dermatophytes. I. Development of macroconidia in *Trichophyton rubrum*.**—*Mycologia*, xl, 2, pp. 232–240, 2 figs., 1948.

Of 50 strains of *Trichophyton rubrum* grown on blood agar base (Difco), stated to contain 500 gm. infusion from beef heart, 10 gm. bacto-tryptose, 5 gm. sodium chloride, and 15 gm. bacto-agar per l., only one failed to produce characteristic macroconidia, though only two of the strains produced them on Sabouraud's honey or dextrose agar. Experimental evidence indicated that tryptose was the ingredient responsible for this spore production.

1226. RUIZ ORONoz (M.). **Estudio de una nueva especie de levaduras del género *Torulopsis* Berlese, aisladas de las escamas de la piel humana.** [Study of a new species of yeast of the genus *Torulopsis* Berlese, isolated from squamæ of the human skin.]—*An. Inst. Biol. Mex.*, xiv, 2, pp. 369–382, 5 figs., 1943. [English summary. Received March, 1947.]

Torulopsis orbiculata n. sp., isolated from squamæ of the skin of patients suffering from 'pinto' disease in the State of Puebla, Mexico, is described.

1227. HOMANN (W. J.) & BRANDSMA (C. H.). **Het voorkomen van favus en trichophytie gedurende de laatste 10 jaren.** [The occurrence of favus and trichophytosis during the last 10 years.]—*Nederl. Tijdschr. Geneesk.*, xci, pp. 10–13, 1947. [Abs. in *Dermatol. & Venereol. (Excerpta med.*, Sect. xiii), p. 279, 1948.]

From 1936 to 1945, 334 patients, including 55 adults (49 women and six men), were treated for favus [*Achorion schoenleini*] at the University Clinic, Groningen. From 1936 to 1940, 164 cases of trichophytosis [*Trichophyton* spp.] were treated, the corresponding number for 1941 to 1945 being 345, in many of whom the beard was involved.

1228. LEITE (A. S.) & DA LUZ (J. B.). **Parasitismo da pele e anexos por estirpes de *Trichophyton rubrum* (Castellani, 1910).** [Parasitism of the skin and neighbouring organs by strains of *Trichophyton rubrum* (Castellani, 1910).]—*An. Inst. Med. trop.*, iii, pp. 21–28, 5 figs. (4 col.), 1946. [French and English summaries. Received March, 1948.]

A morphological description is given of three strains of dermatophytes with a red pigment isolated from cases of generalized epidermophytis accompanied by onychomycosis, localized epidermophytosis, and sycosis of the beard. The differential characters of *Trichophyton rubrum* Castellani, 1910 and *T. purpureum* Bang are reviewed, and the authors suggest that dermatophytes with a red pigment belong to one fungus, which they refer to *T. roseum* Bodin, 1902.

1229. LEE (R. K. C.). **Epidemic tinea capitis: a public health problem.**—*Publ. Hlth Rep., Wash.*, lxiii, 9, pp. 261–268, 1948.

Convinced of the seriousness of epidemic tinea capitis (chiefly *Microsporum audouinii*), the author summarizes and discusses the available information on the disease in the light of the recent outbreaks in the United States, stressing

the importance of recognition by State and city health departments of the need for early diagnosis and timely and adequate treatment of individual cases.

1230. LYNCH (F. W.) & FISHER (I.). **Review of a minor epidemic of ringworm of the scalp.**—*Amer. Practitioner*, ii, 3, pp. 179–182, 1948.

A report is given of an epidemic of tinea capitis involving 26 children aged from one month to 14 years at New Richmond, Wisconsin. From the results of the therapeutic measures adopted it is concluded that manual epilation under Wood's light and daily topical application of a fungicide, such as ammoniated mercury ointment, may be expected to cure most or all of the infections within a reasonable period.

1231. OSBORNE (E. D.). **Ringworm of the scalp in Buffalo County and vicinity. Marked prevalence of disease among school population impels Buffalo Health Department to release article for information and guidance of general practitioners.**—*J. Sch. Hlth*, 1947, pp. 106–110, 1947. [Abs. in *Dermatol. & Venereol. (Excerpta med., Sect. xiii)*, ii, 1, p. 24, 1948.]

An alarming increase in tinea capitis among schoolchildren in Buffalo County was registered during the period from 1941 to 1946, a conservative estimate of the number of cases in the latter year being 1,000, and no signs of a decline in the incidence of new infections are apparent. Some 3 per cent. of the cases are attributed to *M[icrosporum] lanosum* [*M. canis*] and the rest to *M. audouini*. While the former species readily yields to local fungicidal applications, the unanimous opinion of a recent session of the American Academy of Dermatology and Syphilology was that infestation by the latter can only be treated safely and effectively by temporary X-ray epilation of the scalp followed by local therapy. The use of the Wood filter in diagnosis of the condition and the course of the defluvium after irradiation are described. Specialist supervision is advocated for the entire process of diagnosis, treatment, and after-care.

1232. MONCORPS (C.) & GANTE (EVAMARIA). **Über eine Mikrosporieepidemie in Westfalen 1946–1947.** [On a microsporiasis epidemic in Westphalia 1946–1947.]—*Derm. Wschr.*, cxix, 2, pp. 81–87, 1 graph, 1 map, 1947.

An epidemic of microsporiasis in Westphalia, involving 190 persons and still proceeding at the time of writing, was caused exclusively by *Microsporum audouini*. There were two main foci of infection, both in children's homes, and several smaller ones, all mutually independent. In one of the two large outbreaks, the pathogen was introduced from the industrial zone of Rhenish Westphalia and in the other from Silesia. The disease affected 26.6 per cent. of the inmates of the homes. Treatment consisted in X-ray epilation and topical applications of various disinfectant ointments and lotions.

1233. MARPLES (M. J.). **The diagnosis of fungus infection. An investigation of 100 cases.**—*N.Z. med. J.*, xlv, 255, pp. 422–427, 1947. [*B.H.*, xxiii, 180.]

This paper contains the first records of several dermatophytes for New Zealand. Forty-eight cases of dermatomycosis were diagnosed between September, 1946, and April, 1947. *Microsporum audouini* was obtained from four, *M. canis* from 21, and *M. gypseum* from two, while *Epidermophyton floccosum* was found on nine occasions and *Trichophyton mentagrophytes* on eight. Of 11 cases of tinea capitis in children, *M. audouini* caused three and *M. canis* seven.

1234. ALLEN (A. C.). **Survey of pathologic studies of cutaneous diseases during world war II.**—*Arch. Derm. Syph., Chicago*, lvii, 1, pp. 19–56, 12 figs., 1948.

During the period covered by the Second World War, some 8,000 specimens of skin were submitted to the Army Institute of Pathology, Washington, D.C., for histologic consultation, among which were 76 of fungous diseases, distributed as follows: actinomycosis [*Actinomyces*] 2, blastomycosis [*Blastomyces dermatitidis*] 11, chromo[blasto]mycosis [*Phialophora verrucosa*, *P. pedrosoi*, and *P. compacta*] 4, coccidioidomycosis [*Coccidioides immitis*] 13, rhinosporidiosis [*Rhinosporidium seeberi*] 7, dermatophytosis 18, dermatophytid 4, favus [*Achorion schoenleini*] 4, histoplasmosis [*Histoplasma capsulatum*] 1, sporotrichosis [*Sporotrichum schencki*] 5, tinea corporis [*Trichophyton* and *Microsporum* spp.] 2, tinea versicolor [*Malassezia furfur*] 5. Except for the last-named, with its abundant hyphae and spores in the stratum corneum, the dermatophytoses presented considerable diagnostic difficulty owing to the rarity with which the fungi could be demonstrated in sections and the non-specificity of the reactions.

1235. KINNEAR (J.) & ROGERS (J.). **Ringworm of the scalp in the eastern region of Scotland, 1946–7.**—*Brit. med. J.*, 1948, 4584, pp. 854–858, 3 graphs, 1948.

Following a survey of the occurrence of tinea capitis in Europe and the United States a summary of the incidence of the disease as observed in Dundee from 1914 to 1939 is given. An analysis of 631 cases seen in the eastern region of Scotland from 1st July, 1946, to 31st December, 1947, during which period two major epidemics occurred, showed that 613 (97.1 per cent.) were caused by *Microsporum audouini* and that 531 of the patients (84.15 per cent.) were boys. There were eight cases of infection by *M. lanosum* [*M. canis*], two by *Achorion schoenleini*, and eight by *Trichophyton* spp. The disease appeared most commonly to originate in barbers' shops.

Wood's light was found to be essential in the diagnosis and management of *Microsporum* and favus infections but useless in the trichophytoses. Epilation by X-rays or thallium remains the most rapid and successful means of therapy but fungicides assisted by a wetting agent in carbowax 1500 offer a possibility of cure in a reasonable proportion of cases after a considerably longer period of treatment.

A brief note is given on the organization required for a centre to deal with cases of ringworm and the standards necessary to ensure that patients are non-infectious before their return to school.

1236. GRANT PETERKIN (G. A.). **Common skin infections of the feet.**—*Chiropodist*, ii, 4, pp. 98–100, 1947.

The salient facts regarding the symptomatology and diagnosis of fungal infections of the feet, caused by *Candida albicans*, *Epidermophyton* and *Trichophyton* spp., etc., are summarized in this lecture given at a meeting of the Edinburgh and South-East Scotland Branch of the Society of Chiropodists.

1237. GHOSH (L. M.), PANJA (D.), & DEY (N. C.). **Studies on ringworm. Part VI. Ringworm of the glabrous skin. A statistical survey.**—*Indian med. Gaz.*, lxxxiii, 6, pp. 272–274, 1948.

Of 700 cases of ringworm of the glabrous skin investigated at the School of Tropical Medicine, Calcutta, 635 yielded fungi in pure culture, viz., 211 *Epidermophyton floccosum* (33.23 per cent.), 400 *Trichophyton purpureum* (63), 15 *T. gypsum* (2.36), and nine *T. violaceum* (1.40). These figures are compared with the published records of incidence in other countries, in which the relative predominance of the several species is as follows: China, *T. purpureum*,

81.58 per cent., *E. floccosum* 7.90, and *T. violaceum* 10.52; England, *T. purpureum* 29, *E. floccosum* 44.50, and *T. gypseum* 26.50; and the United States, *T. purpureum* 18.33, *E. floccosum* 3.25, *T. gypseum* 75.42, and others 3.

1238. MACHAFFIE (L. P.), PENNY (S. F.), & BECK (E. C.). **Ringworm of the scalp in Ottawa public school children.**—*Canad. J. publ. Hlth*, xxxix, 3, pp. 89–94, 1948.

An outbreak of ringworm of the scalp occurred among Ottawa school-children between November, 1946, and December, 1947. Early cases without clinical signs were detected in routine examinations by Wood's lamp. Of 84 specimens examined in the laboratory, 59 proved positive. Only four samples of girls' hair were examined, of which one was positive. Of 67 specimens examined both microscopically and culturally, 37 (55 per cent.) yielded *Microsporum audouinii* in both tests, 15 (22 per cent.) were negative in both, 9 (13 per cent.) were negative by the microscope and positive by culture, and in 6 (9 per cent.) the position was reversed. *M. audouinii* was the sole fungus isolated from the diseased hairs and skin scrapings.

1239. BAER (R. L.), & MUSKATBLIT (E.). **Extensive Trichophyton purpureum infection, with nevus anomaly of the skin: report of a case, together with mycologic and physiologic studies.**—*Arch. Derm. Syph.*, Chicago, lvi, 6, pp. 834–845, 6 figs., 1947.

A case is reported from New York of a naevus anomaly of the skin, associated with a generalized and unusually extensive infection by *Trichophyton purpureum*, in a 24-year-old male. The excess of horny tissue and relative absence of sweat due to the naevus condition may have contributed to the exceptional susceptibility of the skin to fungal invasion. The symptoms were ameliorated by the application of an oil in water emulsion cream containing coal tar, sulphur, and salicylic acid, known as 'pragmatar' (Smith, Kline, & French Laboratories).

1240. ORSINI (O.). **Dermatoses mais frequentes em Minas, principalmente em Belo Horizonte.** [The most prevalent dermatoses in Minas, principally in Belo Horizonte.]—*Arq. Derm. Sif. S. Paulo*, vii, 1–2, pp. 37–42, 1943. [Received February, 1948.]

Among the dermatomycoses briefly referred to in this survey of common skin disorders in Minas Gerais, Brazil, are favus [*Achorion schoenleini*], which has not been observed of recent years and is represented at the Dermatological Clinic, Belo Horizonte, by only about ten cases since 1911, with the addition of a small family epidemic reported by the author in 1923; microsporoses [*Microsporum* spp.], trichophytoses [*Trichophyton* spp.], epidermophytosis [*Epidermophyton* sp.], and pityriasis versicolor [*Malassezia furfur*], all of which are widespread; sporotrichoses [*Sporotrichum* spp.], of fairly frequent occurrence; and piedra [*Piedra hortai*], mycetomata, blastomycoses, and chromoblastomycoses, which are rare.

1241. GHOSH (L. M.), PANJA (D.), & DEY (N. C.). **Studies on ringworm. Part V. Fungus diseases of the nails and the surrounding tissues.**—*Indian med. Gaz.*, lxxxiii, 5, pp. 215–216, 1948.

Of 190 cases of fungal disease of the nails studied at the School of Tropical Medicine, Calcutta, 100 were found to be due to *Trichophyton purpureum* [*T. rubrum*], 63 to *E. floccosum*, one to *T. violaceum*, and seven to *T. gypseum*; in 19 the causal organism could not be isolated. Of 22 positive findings in 47

cases of perionychia, *Actinomyces keratolytica* was involved in five and *Monilia* in 17.

1242. MACKINNON (J. E.) & ARTAGAVEYTIA-ALLENDE (R. C.). **Vitamin deficiencies of seven strains of ectothrix, large-spored Trichophytons isolated from Man and Cattle.**—*J. Bact.*, lvi, 1, pp. 91-96, 1948.

The effects of thiamine, pyridoxine, and DL-inositol, singly and in every possible combination, on the growth of several strains of *Trichophyton discoides* Sabouraud and *T. ochraceum* Sabouraud were studied on a synthetic basal medium with glucose and asparagine. Of four strains of the former isolated from man in Uruguay, three have a complete deficiency only for DL-inositol, while one requires DL-inositol, pyridoxine, and thiamine for its growth. Sabouraud's strain of *T. discoides* has a complete deficiency only for thiamine. One of the two strains of *T. ochraceum* (also of Uruguayan origin), isolated from a calf, was dependent both on DL-inositol and thiamine for its growth, while the other, from a child who had acquired the infection from calves, was completely deficient in the former vitamin only. On the basis of these studies growth substance requirements do not appear to be helpful in specific identification. Many nutritional varieties may be distinguished among the strains comprised within a species.

The three ectothrix, large-spored *T. spp.* named by Sabouraud *T. album*, *T. discoides*, and *T. ochraceum* may be regarded as synonyms, but they are clearly differentiable on botanical, clinical, and epidemiological grounds from *Achorion schoenleini*, the agent of tinea favica.

1243. FARINA (L.). **Ricerche sul decorso delle infezioni sperimentali da dermatofiti in rapporto a un eventuale stato di iperrecettività provocata.** [Researches on the progress of experimental infections by dermatophytes in relation to a condition of hypersusceptibility eventually induced.]—*Mycopathologia*, iv, 2, pp. 162-171, 1948. [French, English, and German summaries.]

Repeated epidermal inoculations of guinea-pigs with *Trichophyton gypsum asteroides*, *Achorion quinckeanum*, and *Microsporum lanosum* [*M. canis*], repeated homologous and crossed reinoculations, and inoculations of animals previously injected with trichophytin showed that repetition of the inoculations induced intensely inflammatory conditions, while in the homologous and crossed reinoculations the lesions originally produced became persistent. Preventive treatment with trichophytin of animals afterwards inoculated once only clearly influenced subsequent infection, which was stronger or weaker according to the amount of fungus injected. The author puts forward the hypothesis that human inflammatory lesions may be associated with multiple inoculations, while torpid forms with the same quantity of fungus may be associated with a single inoculation.

1244. GLASS (F. A.). **Viability of fungus in hairs from patients with tinea capitis: I. Microsporon audouini.**—*Arch. Derm. Syph.*, Chicago, lvii, 1, pp. 122-124, 1948.

Forty samples of hairs from the same number of patients with tinea capitis (22 *Microsporum lanosum* [*M. canis*] and 18 *M. audouini*) at the Johns Hopkins Hospital, Baltimore, were cultured on Sabouraud's medium and, for purposes of confirmation, on rice and potato, respectively. Nine of the *M. audouini* samples yielded cultures after intervals of 190 to 460 days, while six out of seven up to 321 days old gave positive results. Only two of the *M. canis* samples yielded cultures after intervals of 316 to 342 days. These data corroborate epidemiological observations as to the relative persistence of the two species.

1245. COMBES (F. C.) & BEHRMAN (H. T.). **Technic and problems of roentgen ray epilation.**—*Arch. Derm. Syph., Chicago*, lvii, 1, pp. 74–89, 1948.

This paper deals with the following features of roentgen ray therapy for the control of tinea capitis [*Microsporum* spp., chiefly *M. audouini*], of which up to 1,000 new cases were encountered annually at the height of the war-time epidemic in the United States: preparation of the patient, proper age for the performance of epilation, technique, formula, dose, methods of value in increasing safety and time factors, possible dangers of the treatment, resistant infections following it, criteria of cure, and public health aspects.

1246. TANISSA (A.). **O tratamento local das tinhas tonsurantes.** [The local treatment of tinea capitis.]—*Gaz. med. portug.*, i, 3, pp. 689–694, 1948.

The author summarizes the literature which has appeared since 1945 on the therapy of tinea capitis (*Microsporum audouini*) by means of topical treatment with fatty acids (as opposed to epilation), and briefly refers to his own successful experiments in the cure of the disorder by local applications of cod liver oil.

1247. THIBAUT (D.). **Sycosis dû au Trichophyton cérébriforme.** [Sycosis due to *Trichophyton cerebriforme*.]—*Ann. Derm. Syph., Paris*, Sér. 8, vi, 9, pp. 478–479, 1946.

Trichophyton cerebriforme was identified in pure culture on Sabouraud's medium as the agent of sycosis in a 45-year-old inmate of the Maison de Nanterre, Paris.

1248. SLAUGHTER (J. C.) & CAWLEY (E. P.). **Infection of the glabrous skin instigated by the fungus Trichophyton sulfureum (report of a case).**—*J. invest. Derm.*, ix, 2, pp. 63–64, 1 fig., 1947.

Trichophyton sulphureum was cultured from an erythematous, vesicular lesion on the right knee of a four-year-old girl, a farmer's daughter, at the Michigan University Hospital. An extensive trichophytid involved the scalp, face, neck, trunk, and extremities. Topical applications of undecylenic acid compounds, directed exclusively to the primary lesion, resulted in the disappearance of the entire eruption within a fortnight.

1249. BOURGAIN (M.) & BAZIL (A.). **Onychomycose à favotrichophyton d'origine exotique. Coexistence de deux jordanons de type Achorion.** [Onychomycosis due to *Favotrichophyton* of exotic origin. Coexistence of two jordanons of the *Achorion* type.]—*Rev. Méd. nav.*, iii, 2, pp. 185–188, 1948.

A case of onychomycosis of colonial origin in a 32-year-old patient at the Maritime Hospital, Cherbourg, is reported. The two fungi concerned in the etiology of the disease are referred to *Achorion brumpti* and *A. milochevitchi* (Langeron and Baeza, 1936), or a *Trichophyton* of the *Achorion* type in the subgenus *Favotrichophyton* (Neveu-Lemaire, 1921).

1250. O'FARRELL (N. M.). **Differentiation of Microsporon audouini from Microsporon lanosum by fluorescence.**—*Arch. Derm. Syph., Chicago*, lvii, 5, p. 919, 1948.

In the writer's experience the claims made for the 'Westinghouse purple X' light [No. 966] as a substitute for Wood light in the production of fluorescence for the study of tinea capitis cannot be altogether substantiated. The former appliance does give fluorescence in the case of infections caused by *Microsporum audouini* and is entirely adequate for their examination, whereas in tinea capitis provoked by *M. lanosum* [*M. canis*] fluorescence will appear under a Wood but not under a 'purple X' light. Since the former infection usually

requires X-ray epilation, while the latter is amenable to local fungicides, this difference in fluorescence enables a rapid decision to be made regarding the method of treatment. Cultures are necessary, however, for the identification of the fungus.

1251. MUENDE (I.). **Treatment of fungus diseases of the skin.**—*Trans. R. Soc. trop. Med. Hyg.*, xlii, 3, pp. 216–222, 1948.

The methods of therapy in current use for some well-known dermatomycoses are described. The paper was followed by a discussion (pp. 223–226).

1252. DOWNING (J. G.). **The treatment of ten common skin diseases.**—*Amer. Practitioner*, ii, 6, pp. 357–368, 1948.

The therapy of the dermatomycoses, including those associated with *Trichophyton*, *Microsporum*, and *Epidermophyton* spp. and *Candida albicans*, is briefly discussed and the composition of standard remedies indicated.

1253. LANE (C. G.) & CRAWFORD (G. M.). **Treatment and prevention of certain common skin diseases.**—*Med. Clin. N. Amer.*, xxxi, 5, pp. 1135–1147, 1947.

Among the common dermatoses included in these recommendations for systemic and local therapy and prevention are dermatophytosis or 'athlete's foot' [*Trichophyton* spp.] and tinea capitis (*Microsporum audouinii*, etc.).

1254. **Epidermophytoses and their therapy.**—*Med. Times, N.Y.*, lxxvi, 5, pp. 197–211, 4 figs., 1948.

This is a summary of the available information on the therapy of the dermatomycoses, selected from 25 papers in the relevant literature.

1255. JOLLY (H. R.). **Prevention of ringworm in the Tropics.**—*Brit. med. J.*, 1948, 4554, pp. 726–728, 1 graph, 1948. [*T.D.B.*, xiv, p. 642.]

A description is given of a successful experiment performed in the Netherlands East Indies in 1946 and designed to reduce the high incidence of ringworm among the troops of the British Army. Special measures of personal hygiene were prescribed and lesions on the body, face, and between the toes were treated, respectively, with 1 per cent. chrysarobin, Whitfield's ointment, and brilliant green 1 in 500 in spirit with 3 per cent. salicylic acid. The importance of the spread of infection by way of floors is emphasized. The application of the resultant data to civil life is noted.

1256. HEINEMANN (B. D.). **Fungistatic properties of salicil and related compounds.**—*J. invest. Derm.*, ix, 6, pp. 277–279, 1947.

The results of *in vitro* tests on the toxicity of salicil, benzestrol, diethylstilbestrol, salicylic acid, and dibromosalicil to 12 species of fungi on dextrose agar are tabulated and briefly discussed. Dibromosalicil exerted no fungistatic activity in the maximum concentration obtainable in the culture medium. Salicil, benzestrol, and diethylstilbestrol inhibited the growth of most of the organisms tested at 1 in 20,000 or 1 in 40,000, while a concentration of 1 in 80,000 diethylstilbestrol arrested the development of *Coccidioides immitis*. Salicylic acid was effective against all the species tested in the following dilutions: *Trichophyton mentagrophytes* 1 in 1,000, *T. interdigitale*, *T. purpureum*, *T. sulfureum*, *T. gypseum*, *E[pidermophyton] floccosum*, and *M[icrosporum] audouinii* 1 in 2,000, *M. canis*, *S[porotrichum] schencki*, and *E. [Candida] albicans* 1 in 1,000, and *Coccidioides immitis* and *A[chorion] schoenleini* 1 in 4,000.

1257. FOLEY (E. J.) & LEE (S. W.). **Studies on the effect of pH and solubility on the antifungal properties of fatty acids, trimethyl cetyl ammonium pentachlorophenate and other agents.**—*J. invest. Derm.*, x, 4, pp. 249–263, 1948.

Experiments are described, using *Trichophyton gypsum* as the test organism, which indicate that the growth-inhibitory activity of fatty acids and other agents with acid groupings may depend on pH and solubility, and that experimental conditions exert a marked influence on the results of *in vitro* tests for anti-fungal action.

1258. ROBINSON (H. M.). **In vitro studies of *Microsporon audouini* infection of the hair.**—*Arch. Derm. Syph.*, Chicago, lvii, 6, pp. 991–997, 1948.

As demonstrated by *in vitro* experiments, the term 'fungicide' may be a misnomer when applied to the drugs in current use for the treatment of tinea capitis due to *Microsporum audouini*, and should be replaced by 'fungistatic'. On the basis of these tests, sodium propionate, salicylanilide, propylene glycol dipropionate, propylene glycol dipelargonate, zinc undecylenate and undecylenic acid (desenex), Sulzberger's 'cresatin metacresylate' (acetic acid ester of metacresol) solution and ointment, tincture of merthiolate, and trimethyl cetyl ammonium pentachlorophenate solution and ointment do not appear to be actively fungicidal. Tincture of iodine and 90 per cent. phenol were the only two of the preparations tested with any claim to be called 'fungicidal', no growth occurring on Sabouraud's medium after 21 days. The spores of *M. audouini* can exist in a resting state for at least 125 days, during which their capacity to produce active infection is maintained.

1259. SCULLY (J. P.), LIVINGOOD (C. S.), & PILLSBURY (D. M.). **The local treatment of tinea capitis due to *M. audouini*. The importance of inflammatory reaction as an index of curability.**—*J. invest. Derm.*, x, 3, pp. 111–118, 1948.

Of 433 cases (two of ten years and upwards) of tinea capitis (*M. [icrosporum] audouini*) observed over a period of 18 months in Philadelphia, 106 (24.4 per cent.) showed some degree of inflammatory reaction at the sites of involvement. Sixty of these patients were followed for three months or more, and in 56 (93.3 per cent.) a complete cure was effected by local therapy, for which purpose 10 per cent. copper undecylenate or 5 per cent. salicylanilide ointment are recommended, the former being slightly superior. Of the patients with inflammatory reactions, 59 per cent. were under six years old, compared with only 35 per cent. of 313 non-inflammatory. Intracutaneous testing with 0.1 c.c. 1:30 trichophytin (*T[richophyton] interdigitale*) extract gave a percentage of positive reactions in cured cases of 91.6 as against 35.1 in positive-reacting patients with the non-inflammatory form of the disease.

1260. KLIGMAN (A. M.) & ROSENSWEIG (W.). **Studies with new fungistatic agents. I. For the treatment of superficial mycoses.**—*J. invest. Derm.*, x, 2, pp. 59–68, 1948.

At the laboratory of Dermatological Research, University of Pennsylvania, 23 quinone and dithiocarbamate derivatives were investigated *in vitro* for their fungistatic activity in respect of *Trichophyton mentagrophytes* and *Microsporum lanosum* [*M. canis*]. The toxicity data are expressed in terms of LD₅₀ values, conjunctival reactions, and patch tests. The dithiocarbamates proved to be superior to the naphthoquinones in respect of both toxicity and fungistatic activity, the former, unlike the latter, not being inactivated in the presence of blood. The following four compounds have been selected as the

most promising for clinical trials: disodium ethylene bisdithiocarbamate, calcium dimethyldithiocarbamate, ferric dimethyldithiocarbamate, and phenanthraquinone 9, 10.

1261. PÄTIÄLÄ (R.). **Influence de l'éthylsénévol (isosulfocyanate d'éthyle) sur les dermatophytes en culture et sur les trichophyties de la peau glabre.** [The effect of ethylsenevol (ethylisosulphocyanate) on dermatophytes in culture and on trichophytoses of the glabrous skin.]-*Ann. Parasit. hum. comp.*, xxii, 1-2, pp. 100-104, 1 graph, 1947.

Ethyl senevol was ascertained to have a strongly inhibiting effect on the growth of *Sabouraudites* [*Microsporum*] *audouini*, *Ctenomyces interdigitalis* [*Trichophyton interdigitale*], and *Epidermophyton floccosum*, dilutions of 1 in 10 to 1 in 100 exercising an effect through diffusion even in the immediate vicinity of the place of growth. *T. crateriforme* and *T.* [*Achorion*] *schoenleini* were appreciably more resistant. The same material applied as a paste at 1 in 100 almost completely arrested spread in a case of favus [*T. spp.*], while at 5 per cent. it appeared to have a curative effect, though causing skin irritation, which was alleviated by the use of 10 per cent. salicylate vaseline.

1262. PECK (S. M.) & RUSS (W. R.). **Propionate-caprylate mixtures in the treatment of dermatomycoses, with a review of fatty acid therapy in general.**-*Arch. Derm. Syph.*, Chicago, lvi, 5, pp. 601-613, 1 fig., 1 graph, 1947.

A review of the experimental background and clinical experiences with fatty acid therapy in the treatment of dermatomycoses is followed by an account of the results of *in vitro* tests and clinical trials with a mixture of 12.3 per cent. sodium propionate, 2.7 per cent. propionic acid, and 10 per cent. sodium caprylate in an ointment base. Among the fungi responsible for the various forms of tinea treated were *Trichophyton gypsum*, *Microsporum audouini*, and *T. purpureum*. Judging by its beneficial effects in this series of experiments, the propionate-caprylate combination appears to be more effective than any of the other fatty acids tested against dermatomycoses.

1263. NICKERSON (W. J.) & WHITE (S. J.). **Therapeutic value of ammoniacal silver nitrate in fungous infections of the nails.**-*Arch. Derm. Syph.*, Chicago, lvii, 6, pp. 935-941, 3 figs., 1948.

Of 16 persons with onychomycosis (*Candida albicans* in eight cases, *Trichophyton rubrum* in seven, and *Epidermophyton floccosum* in one) treated by weekly painting of the nails with ammoniacal silver nitrate solution, nine were cured and seven definitely improved. The penetration of the fungicide through the keratin was demonstrated by roentgenograms and histological studies.

1264. DEVOS (A.). **L'influence de quelques antibiotiques sur les champignons.** [The influence of some antibiotics on fungi.]-*Parasitica*, iv, 1, pp. 27-29, 1948.

Three materials with bacteriostatic properties, viz., the sulphamide para-aminobenzene-sulphonamide N.Y.Q., a mixture of sulphamides consisting of sulphathiazole 30, sulphapyridine 10, and sulphanilamide 60, and sodium propionate, when added separately at the rate of 1 per cent. to a culture medium containing 2 per cent. glucose, pH 6.5, completely inhibited growth by *Trichophyton violaceum*, *T. album*, *T. langeroni*, *T. equinum*, *Microsporum equinum*, *M.* [*Achorion*] *gallinae*, *A. quinckeana*, and the organisms [*A. spp.*] causing favus in various animals.

1265. LANDY (M.), WARREN (G. H.), ROSENMAN (S. B.), & COLIO (L. G.). **Bacillomycin : an antibiotic from *Bacillus subtilis* active against pathogenic fungi.**—*Proc. Soc. exp. Biol. Med., N.Y.*, lxvii, 4, pp. 539–541, 1948.

A strain of *Bacillus subtilis* has been isolated which elaborates a hitherto-undescribed antibiotic, termed bacillomycin, possessing remarkable antifungal activity and almost no effect on bacteria. Nearly all the important dermatophytes and systemic fungi are sensitive to it. A satisfactory bioassay, using the agar cup plate technique and a spore suspension of *Trichophyton mentagrophytes*, is described. Some physical and chemical properties of the antibiotic are given, together with a simple procedure for its concentration from culture broths.

1266. BRAIN (R. T.), CROW (K.), HABER (H.), MCKENNY (C.), & HADGRAFT (J. W.). **Treatment of ringworm of the scalp.**—*Brit. med. J.*, 1948, 4554, pp. 723–726, 1948. [*B.H.*, xxiii, 512].

A preliminary report is given on new advances in the local treatment of ringworm of the scalp at the St. John's Hospital for Diseases of the Skin and the Royal Free Hospital. Out of 22 cases treated with 0.5 per cent. phenylmercuric nitrate in carbowax and Grill No. 6 (an ethylene oxide derivative of sorbitan monolaurate), comprising eight due to *Microsporum audouinii*, nine to *M. felineum* [*M. canis*], four to unidentified species of *Microsporum*, and one to *Trichophyton endothrix*, 17 were cured in an average period of 2½ months. Preliminary epilation (which was not applied to these patients), even when followed by the use of old-fashioned remedies, still affords the quickest prospect of cure.

1267. SULLIVAN (M.) & FISHBEIN (H. A.). **Field trial of United States Army fungicidal ointment.**—*J. invest. Derm.*, x, 4, pp. 293–299, 1948.

In a trial conducted from May to November, 1945, on military personnel from Fort Bliss and patients of the William Beaumont General Hospital, Texas, suffering from dermatomycoses, 321 were treated with fungicidal ointment (active ingredient, 5 per cent. undecylenic acid), 117 with desanex ointment [No. 1031] (5 per cent. undecylenic acid and 20 per cent. zinc undecylenate), and 118 with sopronol ointment (sodium propionate 16.4 and propionic acid 3.6 per cent.). Desanex proved to be the most effective of the three preparations, effecting clinical 'cures' in 30 per cent. and improvement in 50.4 per cent. of the subjects, the corresponding figures for fungicidal ointment being 20 and 55.4, and for sopronol 15.2 and 45.8 per cent., respectively.

1268. HÄFNER (A.) & KYM (O.). **Zur Therapie der Fussmykosen : Sterosan-Paste.** [On the therapy of foot mycoses: sterosan paste.]—*Schweiz. med. Wschr.*, lxxvii, 52, p. 1369, 1947.

Sterosan paste, applied nightly to the feet, relieved 27 obstinate cases of mycosis in two to three days and mostly resulted in a complete cure, demonstrated by the absence of the [unspecified] agent from skin scrapings, within a fortnight.

1269. SCHREUDER (P. J. v. d. H.) & WRIGHT (F. B.). **The Horse on the farm. X. Common diseases of Horses in South Africa.**—*Fmg S. Afr.*, xxiii, 264, pp. 183–190, 4 figs., 1948.

Dealing with ringworm and allied fungal diseases of horses in South Africa [causes unspecified] the authors state that the symptoms may take the form of typical rings or they may begin as small raised nodules in the skin, the tops

of which break off, leaving a moist area which soon dries, becomes scurfy, and spreads irregularly. If not much scurf is present and the hair is short, strong tincture of iodine may be applied. Another remedy is a mixture of 2½ per cent. salicylic acid and 2½ per cent. benzoic acid in liquid paraffin. In the first type of ringworm mentioned, washing the whole body twice with 1 per cent. of a proprietary disinfectant at an interval of one week is very effective. Grooming kit used on horses infected by ringworm should also be disinfected.

1270. FOWLE (L. P.) & GEORG (LUCILLE K.). **Suppurative ringworm contracted from Cattle.**—*Arch. Derm. Syph., Chicago*, lvi, 6, pp. 790–793, 3 figs., 1947.

In 14 cases of deep suppurative ringworm infections contracted from cattle in a community of Pennsylvania farming families from 1942 to 1945, the causal organism was identified as the faviform *Trichophyton*, in 12 others as *T. discoides*, and two as *T. album*, while cultures from four yielded *T. mentagrophytes*. No pathogenic fungi were observed on the hair in the remaining five cases, nor could they be grown in culture, but no doubt is entertained as to their nature. Blood agar base ('Difco') enriched with thiamine is suggested as an isolation medium for use in cases of deep suppurative ringworm in which infection by the faviform *Trichophyton* is suspected. The inoculation of rabbits with *T. album* and *T. discoides* from human patients resulted in the development of typical ringworm lesions, from which the pathogens were recovered.

1271. O'FLAHERTY (F.) & RODDY (W. T.). **Animal skin diseases and their influence on leather.**—*J. Amer. vet. med. Ass.*, cxii, 851, pp. 133–135, 1948.

Damage to animal skins by the group of fungi responsible for ringworm may entail a heavy financial loss owing to the inferior quality of the finished leather products. The lesions consist of scar tissue formations on the epidermis, which may coalesce into irregular areas covering the larger part of the skin.

1272. ALBORNOZ (J. E.). **Primer caso de sporotricosis equina comprobada en el país.** [The first case of equine sporotrichosis identified in the country.]—*Rev. Med. vet., Bogotá*, xiv, pp. 33–42, 1945. [*V.B.*, xviii, 247.]

Skin lesions in different stages of development in the first case of equine sporotrichosis [*Sporotrichum schencki*] identified in Colombia are described, diagnosis being confirmed by culture. Potassium iodide treatment gave good results.

1273. **Sporotrichosis infection on mines of the Witwatersrand. A symposium.**—*Proc. Transv. Mine med. Offrs' Ass.*, 67 pp., 37 figs., 2 charts, 1947. [*B.H.*, xxiii, 410.]

Between March, 1941 and July, 1943 there were 2,441 cases of sporotrichosis at the Ventersport mine, Transvaal, while between August, 1942 and October, 1944, there were 384 cases at the Consolidated Main Reef mine. Clinically, the disease was rather mild, and 60 per cent. of the lesions occurred on the hands and arms. Four clinical types were recognized, (a) pustular and ulcerative, (b) papular, (c) flat plaque, and (d) warty. In (c) and (d) spontaneous cure sometimes occurred. The asteroid body was present with sufficient frequency to provide an important aid to microscopical diagnosis, though this might involve examination of a series of sections in a particular case. The asteroid structure formed round a large *Cryptococcus*-like cell, a stage of the fungus not previously described, and representing a development from the small, cigar-shaped parasitic yeast.

The source of infection was the saprophytic growth of the fungus on the

wooden mine props. Detection of *Sporotrichum schencki* was difficult until it was found to produce characteristic triangular spores and to develop a dark brown or blackish pigment. It was then isolated from 30 per cent. of 103 samples of wood examined. Cultures of *Sporotrichum* from the mine timbers resembled in all characters those from the human lesions, and the fungus is regarded as probably a local variety of *S. beurmanni*. Experimental evidence demonstrated that it grew freely on sound, untreated timber of several kinds used for mine props, but penetrated less than 0.5 mm. into the wood. Fungicidal spraying of the existing mine props and the substitution of treated for untreated timber in replacements were followed by cessation of the infections.

1274. KALKOFF (K. W.) & JANKE (D.). **Zur Kenntnis der durch *Sporotrichon gougeroti* hervorgerufenen Sporotrichose.** [Contribution to the knowledge of the sporotrichosis induced by *Sporotrichum gougeroti*.]—*Derm. Wschr.*, cxix, 6, pp. 321–329, 10 figs., 1948.

A case of sporotrichosis (*Sporotrichum gougeroti*) involving the right arm-pit of a ten-year-old girl at Münster, Westphalia, is fully described. Inoculation experiments on mice gave positive results. The patient was cured by X-ray irradiation (Chaoul's method). Owing to the typically yeast-like aspect of the cultures on Grütz's peptone-malt agar medium and the entire absence of the filiform mycelium with tufts of spores characteristic of all *S. spp.*, it is proposed that *S. gougeroti* be transferred from *Sporotrichum* to the pathogenic yeasts.

1275. RUSSO (E.) & GOMES (R. P.). **Novas observações de esporotricose.** [New observations on sporotrichosis.]—*Hospital, Rio de J.*, xxxiii, 2, pp. 215–222, 9 figs., 1948. [*T.D.B.*, xlv, 930.]

Four cases of sporotrichosis are recorded, all of which were diagnosed by the isolation of *Sporotrichum schencki* grown on Sabouraud's dextrose agar, forming a blackish pigment. On transfer to ordinary agar, pH 6.6, it grew well but remained white; when re-transferred to Sabouraud's medium it again assumed the coloured growth.

1276. LEITE (A. S.) & DA LUZ (J. B.). **Contribuição para o estudo das esporotricoses na província ultramarina de Moçambique.** [A contribution to the study of sporotrichoses in the overseas province of Mozambique.]—*An. Inst. Med. trop.*, iii, pp. 187–194, 10 figs., 1946. [French and English summaries. Received March, 1948.]

A brief clinical account is given of a case of sporotrichosis [*Sporotrichum? schencki*] in a negro woman in Mozambique. In addition to typical lesions, a tumour of the fibro-angiomatosis type was found, apparently not hitherto reported as associated with this disease.

1277. SALVIN (S. B.). **Multiple budding in *Sporotrichum schenckii* Matruchot.**—*J. invest. Derm.*, ix, 6, pp. 315–320, 18 figs., 1947.

The budding or tissue phase of seven strains of *Sporotrichum schencki* from human subjects (five in the United States and one each in South Africa and Guatemala) was grown in a fluid medium consisting of 10 gm. proteose-peptone, 3.25 gm. each of neopeptone and bacto-tryptone, 2 gm. bacto-dextrose, 5 gm. sodium chloride, 2.5 gm. disodium phosphate, 1.75 gm. bacto-agar, and distilled water to make 1,000 c.c. In addition to the formation of single buds, two types of multiple budding were observed, in one of which one to four buds were borne at one or both of the cell extremities, while in the other buds were produced at any point on the cell surface. Opti-

imum conditions for the culture of the tissue phase were studied and found to comprise maintenance at a temperature of 37° C., 0.15 to 0.2 per cent. agar in the medium, a pH of 8.2, 60 to 80 per cent. carbon dioxide tension, and limited quantities of protein and carbohydrate.

1278. GONZÁLEZ OCHOA (A.) & SOTO FIGUEROA (EVA). **Polisacaridos del Sporotrichum schenckii. Datos inmunológicos. Intradermoreacción en el diagnóstico de la esporotricosis.** [Polysaccharides of *Sporotrichum schenckii*. Immunological data. Intradermal reaction in the diagnosis of sporotrichosis.]—*Rev. Inst. Salubr. Enferm. trop.*, viii, 2, pp. 145–153, 1947. [*T.D.B.*, xlv, 270.]

Cultures of *Sporotrichum schenckii* gave two carbohydrates, one from the culture film and one from the liquid. They were precipitated by homologous and heterologous immune rabbit serum and from human cases of sporotrichosis. They were not antigenic or toxic, and the skin tests done with them would appear to be of value for diagnostic purposes.

1279. LURIE (H. I.). **A common antigenic factor in different species of Sporotrichum.**—*Mycologia*, xl, 1, pp. 106–113, 1948.

The author describes a simple technique for the preparation of *Sporotrichum* antigen, the immunization of rabbits, and an agglutination test. From cultures, grown on Difco cystine-agar, milky suspensions of spores in sterile isotonic saline were prepared and then killed by heating to 60° C. for two hours. The density of each spore suspension was measured by centrifugation in Hopkins tubes and each was adjusted by the addition of saline to a concentration of 1 in 200. A suspension of 1 in 1,000 was made, and the former used for the injection of rabbits and the latter for subsequent agglutination tests.

Comparison of their serological reactions showed that *Sporotrichum schenckii*, *S. beurmanni* [*S. schenckii*], *S. asteroides*, and *Rhinocladium equi* all have a common antigenic factor, which is present irrespective of the degree of pigmentation of the fungus.

The *Sporotrichum* saprophytic on mine timbers in South Africa [No. 1273] contains the same antigenic factor as the species isolated from lesions on workers in the same mines. Further work is in progress.

1280. BAKER (R. D.). **Experimental sporotrichosis in Mice.**—*Amer. J. trop. Med.*, xxvii, 6, pp. 749–769, 6 pl., 1947.

Chronic progressive sporotrichosis of an extremity, somewhat resembling the human form of the disease, was induced in white mice by a single injection into the paw of a suspension of *Sporotrichum schenckii* or of pus from a human subject. Such injections were made in 47 mice. Massive sporotrichosis of the foot and later of the ankle developed. The process lasted for about two months and was followed in some of the animals by spontaneous recovery while others died from generalization of the disease. Intraperitoneal injections with the same inocula were made in 52 mice. The resultant local sporotrichosis spread to the liver and in some cases to other organs. Many of the animals died about three or 12 weeks after inoculation. The experimental disease, whether of extremity or peritoneum, was characterized by the growth of enormous numbers of the tissue form of the fungus, especially within macrophages, contrasting with the paucity of organisms in human lesions. It was thus a cytomycosis, similar to human histoplasmosis [*Histoplasma capsulatum*]. The lesions in the mice were suppurative, necrotizing, and fibrosing, as well as macrophagic. Six strains of *S. schenckii* from human subjects (five in the United States and one in Peru) produced identical lesions in the mouse, while a seventh (United States) was only weakly pathogenic.

1281. LANGERON (M.). *Tritirachium brumpti* (Langeron et Lichaa 1934) Langeron 1947 et le genre *Tritirachium* Limber 1940. [*Tritirachium brumpti* (Langeron & Lichaa 1934) Langeron 1947 and the genus *Tritirachium* Limber 1940.]—*Ann. Parasit. hum. comp.*, xxii, 1–2, pp. 94–99, 1 pl., 1 fig., 1947. [*T.D.B.*, xlv, 111.]

A study of cultures of the fungus formerly known as *Beauveria brumpti*, but renamed by the author *Tritirachium brumpti*, isolated in Cairo in 1934 by Dr. Lichaa from the eye of a 17-year-old girl showed the fungus to be a Hyphomycete with large verticillate phialides having the characteristics of *Beauveria*, i.e., a zig-zag beak bearing a basifugal series of phialospores. In 1940 D. P. Limber described under the name *Tritirachium* a number of Hyphomycetes also showing this character, but even more marked. The other four species of *Tritirachium* parasitic on man are *T. ipigeum* (Brunaud 1888), causing cutaneous and bony lesions, found in Venice by E. Asuhieri in 1930 affecting a patient who had spent 20 years in Brazil; *T. rubrum* (Baquis and Cardone 1905), causing ocular mycosis in Italy, red colonies; *T. shiotae* (Kuru 1932), causing an abscess of the thorax in Japan; and *T. viannai* (F. de Mello 1917), causing circinate herpes in Mozambique, rose colonies. Medically, *Tritirachium* spp. appear to be cosmopolitan saprophytes accidentally attacking man, their pathogenic power being very weak.

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